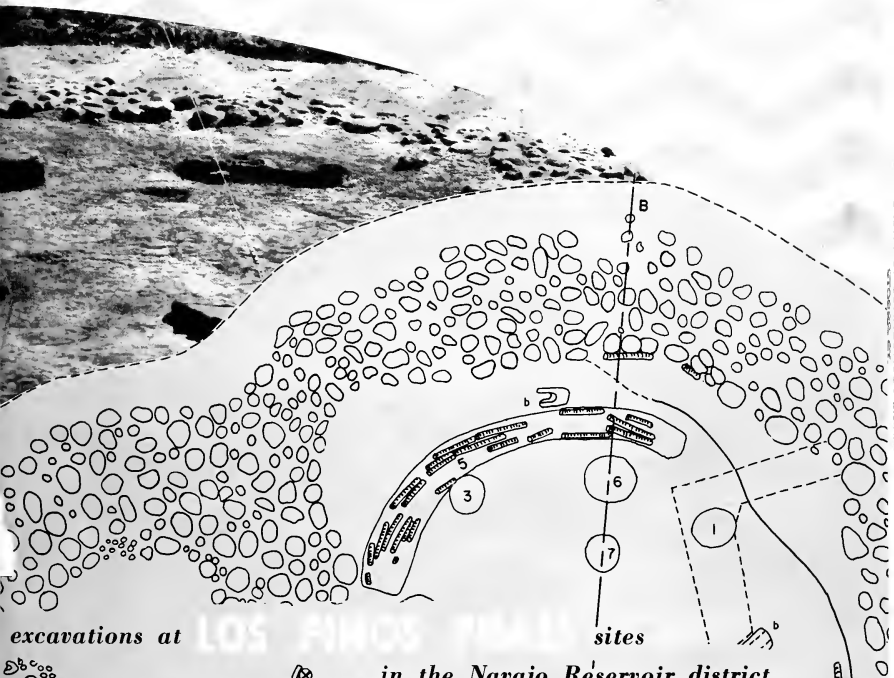


excavations at sites in the Navajo Reservoir district

by Frank W. Eddy
with a section
by Beth L. Dickey

Museum of
New Mexico Press

number

Museum of New Mexico
Papers in Anthropology
Santa Fe 1961

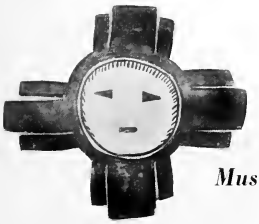
excavations at LOS PINOS PHASE *sites in the Navajo Reservoir district*

by Frank W. Eddy
with a section
by Beth L. Dickey

Museum of
New Mexico Press

number 4

Museum of New Mexico
Papers in Anthropology
Santa Fe 1961



Museum of New Mexico Press

A Salvage Archaeology program conducted by the Museum of New Mexico in co-operation with the National Park Service, Region Three, Department of the Interior, in the Navajo Reservoir District of the Upper Colorado Storage Project.

Edited by
EDWIN PIGEON
Editor of Publications, Division of Anthropology
and
RICHARD WORMSER

THE MUSEUM OF NEW MEXICO PRESS
SANTA FE, NEW MEXICO

Printed in the United States of America

NAVAJO PROJECT STUDIES IV

Publication Number 4 of the Museum of New Mexico Papers in Anthropology

Printed in a limited edition of 500 copies

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

PREFACE AND ACKNOWLEDGEMENTS

Navajo Project Studies IV is a report on two Los Pinos Phase sites excavated in 1959 and 1960. These sites are located along the lower length of the Pine River, a major north-south tributary of the San Juan River of northwestern New Mexico and adjacent portions of Colorado. They lie within the Pine River Section, an arbitrary geographic division of the Navajo Reservoir District. This District is an area of study delimited by salvage archaeology considerations, and described in Navajo Project Studies I and II (Dittert, 1958, and Dittert, Hester, and Eddy, 1961).

A site survey of the entire District was completed during the summer of 1959, as a first step in a salvage archaeology program to study the prehistoric remains about to be inundated by the Navajo Dam on the San Juan River below its junction with the Pine River. The reservoir created by this dam will flood a maximum area of twenty-three square miles, extending up both rivers. The second step in the Navajo Reservoir salvage program is excavation of a representative proportion of the 454 sites located and described on survey.

A major effort in this direction was begun at the end of the 1959 field season; one of the sites excavated at that time was the Power Pole site, LA 4257, reported here. Work was conducted with the staff assistance of J. Anthony Pomeroy and a labor crew of five men from Taos, New Mexico. Also, members of the Navajo Project staff, including Dr. Alfred E. Dittert, Jr., Stewart L. Peckham, and Jim J. Hester, spent one or more work days familiarizing themselves with the new excavation problems. Work went on for approximately six weeks, from late August through the first week in October.

During the following year, 1960, an excavation was made at Valentine Village, LA 4289, with which the second major portion of this report is concerned. Field work was conducted with the staff assistance of Curtis F. Schaafsma, followed by Henry C. Greminger for the second half of the excavation program. James O. Marshall preceded the full-scale operation for a week, clearing sage cover, doing preliminary mapping, and excavating Structure 1. Successive labor crews averaging five men, were again recruited from Taos, New Mexico. Field work lasted from the first of August through October.

Permission to work at these sites was granted by a National Park Service permit for salvage archaeology; at the time excavations were conducted, ownership of the property had already passed from private hands to control by the Federal Government.

In addition to aid in the field work, many people gave assistance after the recovered information and material were brought to the Laboratory of Anthropology, Santa Fe. Beth L. Dickey supervised and participated in washing, preserving, labeling, and describing many of the artifacts. Many tasks having to do with laboratory analysis were performed by Dr. Lawrence K. Lunt. Mammal bones were identified by Richard B. Forbes of the Biology Department, University of New Mexico, and juniper specimens were examined for dendrochronological potential by Thomas A. Lee, Jr., Laboratory of Tree-Ring Research, University of Arizona. Radiocarbon analysis of two samples was performed by Isotopes, Inc., of Westwood, New Jersey. Three other samples have been contracted to the Michigan Memorial Phoenix Project at the University of Michigan, but results have not yet been received. Most of the drafting for this project was performed by Betty P. Wistrand, Alice Wesche, and Phyllis H. Hughes. Maude L. Bolin typed and retyped manuscript during the writing process; the final typing and the charts were done by Terri Reznik; editing was performed by Edwin Pigeon and Richard Wormser; the photographic work was done by Judson R. Davis, Jr. Finally, Drs. Alfred E. Dittert, Jr. and Fred Wendorf provided much stimulating direction and counsel in this research.

CHAPTER I

PROBLEMS AND RESULTS

EXCAVATIONS IN RELATION TO THE LOS PINOS PHASE

Archaeological survey in the Navajo Reservoir District provided the basis for a preliminary statement defining the Los Pinos Phase, a local variant of the Basket Maker II culture of the San Juan Basin (Dittert, Hester, and Eddy, 1961, p. 213). The survey yielded evidence of a unique type of site. Surface manifestations included circular, cobble ring pavements in association with smaller, non-ring structures, the latter indicated by concentrations of burned adobe chinking fragments. Hearthstones and sheet refuse deposits were additional surface manifestations.

Based on survey observations and collections from twenty-two sites, sixteen of which are located along the Pine River, the remains described above were designated as of the Los Pinos Phase (Fig. 1). This new term is employed because it is felt that the cobble rings and associated remains are indicative of a distinctive unit of cultural occupation in the Reservoir District.

Following this survey, excavations were conducted at two Los Pinos Phase sites, the Power Pole Site (LA 4257) and Valentine Village (LA 4289), to provide more detailed information about this newly defined cultural unit.

LA 4257 is a multiple-unit site. It exhibits two cobble ring pavings, surrounded by a large concentration of sheet refuse. Excavation cleared one cobble ring and tested a second. Two rectangular tests were made in the surrounding refuse deposit. This site was selected for initial exploratory study to answer such questions as: what is the nature of the circular cobble pavings; are the refuse deposits entirely nonceramic; what is the temporal and cultural placement of these sites with reference to the cultural history of the Navajo Reservoir District?

LA 4257 was chosen for study because of the excellent preservation of cobble rings found on the site, as well as the ease of access from the field camp in Allison, Colorado. In addition, excavation procedures were perfected here, and equipment needs determined, so as to expedite a proposed study of Los Pinos Phase sites in the more isolated central portions of the Pine River Section. The preliminary findings were put to good use during the subsequent excavation study of LA 4289. Although the site does not lie within the area to be affected by flooding, the expedient way in which the above questions were answered, in time to implement the survey report, made LA 4257 an ideal choice for the first excavations in the newly defined Los Pinos Phase.

LA 4289 is a large village site which exhibits eight cobble ring pavings and several concentrations of adobe chinking, both surrounded by a large sheet deposit of refuse. A much smaller component of Gobernador Phase refuse is present, toward the south-central portion of the site bench.

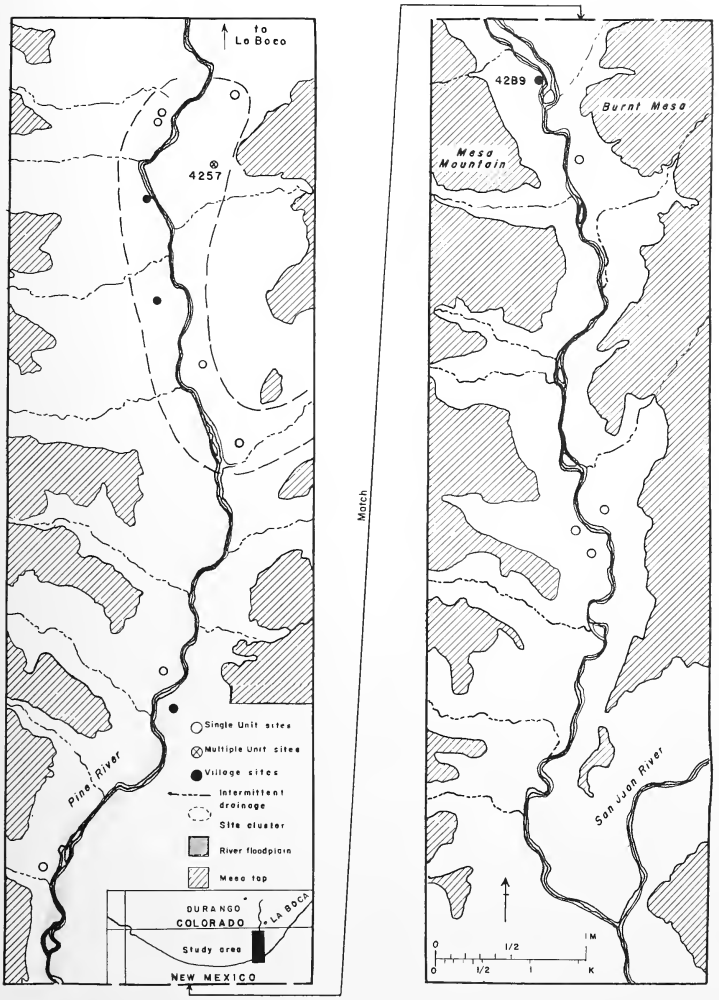


Fig. 1. Map of the Pine River Section, Navajo Reservoir District, showing the distribution of Los Pinos site types in relation to land surfaces.

Excavation cleared four cobble ring structures, trenched four more, cleared three non-ring structures; in addition four tests in Navajo and Los Pinos sheet refuse were made.

This site was selected for study for two basic reasons: salvage of archaeological data, and problems inherent in its site type and geographic location. Salvage was essential because the site lies well within the proposed Reservoir area and, according to the Bureau of Reclamation, will be flooded by an initial 200-foot lake, scheduled to be impounded beginning in July of 1961.

Besides the salvage considerations, LA 4289 also was selected for study because of its potential value for answering questions raised by the initial survey analysis. Some of these problems deal with:the nature of the village-size site type; characteristics of the non-ring house type; the effect of geographic isolation.

The description and discussion to follow is the second step in a tri-level research program, which consists of survey, excavation, and synthesis. The final step will be broad cultural and environmental interpretation of the previous reports. Therefore, the present excavation report is designed primarily to be descriptive, contributing toward the end goal, synthesis.

SETTING AND DESCRIPTIONS

The Power Pole Site: LA 4257

In keeping with accepted practive, LA 4257 was designated as the Power Pole Site, a mnemonic device to set this site off from hundreds of others, serially numbered, within the Reservoir District. The name was suggested by the power line pole within the cobble ring of Structure 1.

SETTING:

Physical and biological characteristics of the Navajo Reservoir District, and the Pine River Section in particular, have previously been described in detail (Dittert, et al, 1961, Chap. II, p. 63). The Power Pole Site is situated on a Pleistocene (?) bench of the second terrace level. This terrace remnant is located high on the left (east) canyon wall of the Pine River, at an elevation of 6,340 feet, 160 feet below the surface of Burnt Mesa. At the front of the bench, the canyon wall drops off abruptly for another 160 feet, in a steep, boulder-strewn slope, to the verdant river bed of the Pine River. Toward the rear of the bench, the land surface rises gently to the foot of a sandstone cliff escarpment which forms a nearly vertical step rise to the plateau surface of Burnt Mesa. The site is located 2.1 miles south of the town of La Boca, Colorado, and 1.1 miles below the Colorado-New Mexico State boundary. This position is in the NW 1/4 of the NW 1/4 Sec. 17, T 32 N, R 7 W, NMPM (USGS Burnt Mesa Quadrangle, and Fig. 1).

Today, pinyon and juniper trees cover the upper portion of the site; sagebrush, intermixed with sparse grass clumps and isolated trees, covers the lower end. The break between the two types of vegetation occurs below Structure 2.

This vegetation is identical to that found in the surrounding vicinity. However, an unusual stand of Douglas fir is found 1.9 miles south of the site, in the mouth of Bonito Canyon (Dittert, et al, 1961, Fig. 6).

No particular note was made of the wildlife during the period of field work, but the species represented are undoubtedly similar to those described for the canyon and mesa country in and around the Reservoir District (Dittert, et al, 1961).

Various geological resources were utilized by Los Pinos occupants. The broad, relatively level aspect of the bench terrain provides ample room for an openly spaced layout of architectural structures; an elevated position above the river flood plain gives easy access to the nearby plateau environments of Burnt Mesa; the site bench could have provided river-rounded cobbles for architectural stone pavements. Some

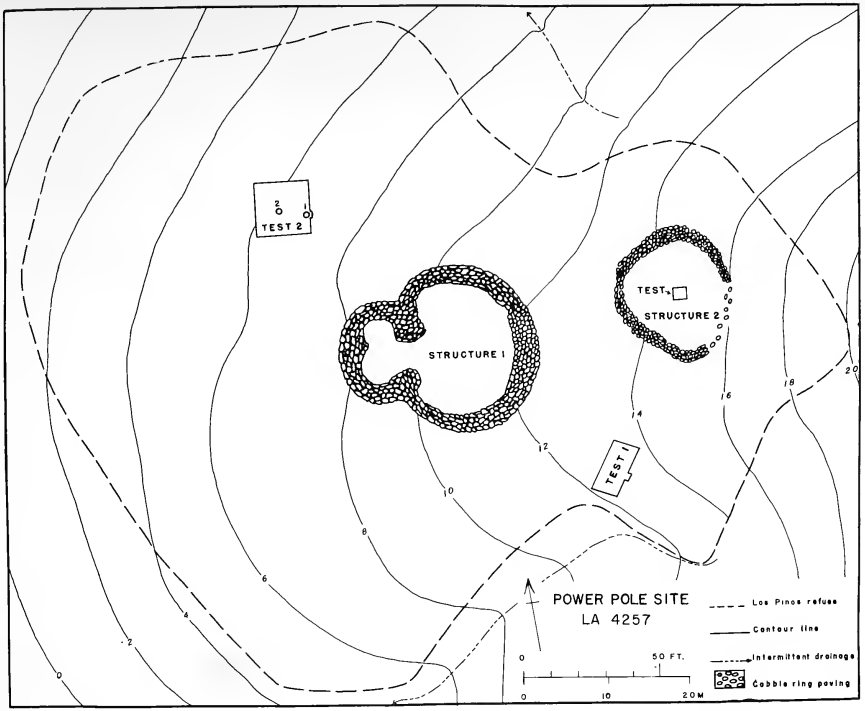


Fig. 2. Map showing the distribution of prehistoric remains in relationship to topography at the Power Pole Site: LA 4257.

knapping materials also may have been derived from the bench cobbles.

Dry farming is not currently practiced on any Pleistocene (?) bench in the Navajo Reservoir District, but with sufficient water supplied by irrigation, such as is conducted on Miller Mesa, a second terrace bench along the San Juan River, corn and alfalfa may be grown readily today. Given this water in the form of rainfall, horticulture, such as the Los Pinos people may have practiced, could have been carried on immediately adjacent to the site. Otherwise, the unentrenched prehistoric flood plain along the Pine River, or flood plains along the currently intermittent mesa-top drainages, would have been suitable for gardening. Perhaps all terrain types were so utilized.

Vegetation currently present on the site, as well as riverside broad-leaf foliage, would have provided ample natural plant resources for construction, foods, and products. Wildlife described for the Reservoir District produce natural food and skin products.

In summary, the potential resources available today would be well suited for small sedentary populations, practicing an economy based on small-scale farming and foraging, in a variety of environments found in the countryside surrounding the site.

DESCRIPTION:

Power Pole was the first site exhibiting stone rings to be recorded on the Pine River survey (Fig. 2). When first encountered by a survey team member, an extensive refuse sheet was observed where it had been cut by a county road. The black clay cultural debris, containing fire-cracked rocks and some tools, was followed upslope until a large figure-eight ring of river cobbles was found. At that time, some discussion developed among the team members whether this was a man-made feature. However, when a second irregular-shaped single cobble ring paving was located, farther upslope in a grove of pinyon trees, a unique type of cultural feature was recognized.

Following this inspection, a surface collection of artifacts was made and it was noted that few sherds were present; in fact, no more than might be expected in random scattering from nearby Rosa Phase sites. Also, a difference in the nature of lithic material and tool types was observed. The stone artifacts ran to heavy basalt choppers and hammers, which are not usually found on Pueblo or later sites. This led to stronger belief that a new cultural manifestation had been found. But not until many more sites of this type were encountered were they classified with a cultural term.

The arrangement of the site is very simple, consisting of a pair of ring structures set close together along the crest of a low ridge. It later was defined as a multiple-unit type (Dittert, et al, 1961, p. 45). The sheet deposit of refuse completely surrounds these houses and extends downslope. No non-ring type houses were recognized from surface indications.

Valentine Village: LA 4289

Valentine Village is named because of the unusual occurrence of a heart-shaped cobble ring paving at Structure 2. The shape is quite distinct; no other examples are presently known within the Reservoir District.

SETTING:

Valentine Village is situated on a Pleistocene (?) bench of the first terrace level. This terrace remnant lies just above the Pine River, on the right (west) canyon wall, at an elevation of 6,000 feet (Fig. 3). This bench is sixty feet above the river flood plain and 700 to 800 feet below the plateau surface of Mesa Mountain, a physiographic unit directly behind and west of the site. The site is also 500 feet below the generally lower surface of Burnt Mesa, across the canyon. Geologically, the bench consists of a sandstone base, capped with approximately ten to twenty feet of Pleistocene (?) river alluvium, made of inter-fingering lenses of gravel and silty clay. A sheer sandstone cliff forms the front of the bench,

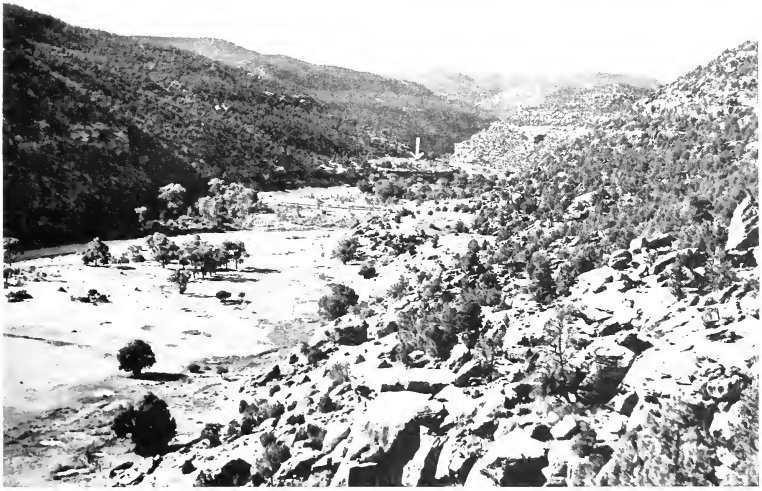


Fig. 3. View looking up the Pine River Canyon and showing the location of the Pleistocene (?) age bench upon which Valentine Village is situated. Vertical arrow points to the bench surface.

Fig. 4. View looking down on the site bench, Valentine Village. Photograph taken from the canyon wall immediately across the river.

dropping to the comparatively lush flood plain of the Pine River. At the base of this cliff, on the south end, there is a steep talus slope composed of alluvium washed from the bench surface. The surface of the bench rises in a fairly gentle slope, to intersect the steep boulder-strewn canyon wall. A high angle view of this bench reveals a triangular shape with a maximum bulge in the center, both ends merging with the canyon wall (Fig. 4). Intermittent gully drainages flow from the back of the bench and drop over the front edge onto the river flood plain. Shallow erosion in these usually dry water courses has carved low ridges, nearly parallel-trending, extending outward from the back of the bench. The prehistoric houses were built upon these topographic features. Structures are found toward the bench center, or on the edge of the bench, where they overlook the river below. In only one example, Structure 9, does a house occur at the back of the bench.

The site is located 7.8 miles below the town of La Boca, Colorado; 6.8 miles south of the New Mexico-Colorado State boundary. This position is in the SW 1/4 of the NE 1/4, Sec. 18, T 31 N, R 7 W, NMPM (USGS, Burnt Mesa Quadrangle, and Fig. 1).

At present, a number of vegetation associations exist in the immediate vicinity of the site. The bench cover is almost exclusively sagebrush interspersed with infrequent clumps of grass. Behind the bench, the canyon wall is covered with woods of pinyon and juniper. Pockets of pine and fir are found on the opposite canyon wall less than a mile downstream, and scrub oak is found on the talus below the bench front. On the river flood plain are willow thickets and groves of cottonwood, with some grass on former agricultural fields.

Occasional wildlife such as small groups of deer, a beaver colony, porcupines, skunks, fox and a few ducks was noted.

Potential resources available for human use are very similar to those described for the Power Pole Site, but Valentine Village lies much closer to the river. Conversely, the mesa-tops are less accessible to LA 4289. The location would have implemented flood plain farming, riverside plant collecting, and hauling of water, but would have hindered many hunting activities on the mesa.

DESCRIPTION:

At the time this site was first recorded the following surface manifestations were observed: five cobble rings, a number of jacal surface structures (now referred to as non-ring structures), and two components of refuse - an apparent non-ceramic refuse deposit, and Gobernador Phase refuse. It was estimated that these remains covered an area of 150 by 300 feet (Dittert, et al, 1961, Table II). Excavation revealed that this was a very conservative evaluation; later a total of eight ring structures were defined and three non-ring houses (Fig. 5). It is probable that nearly the total number of ring pavings were identified, since they all appear on the surface. More extended contact with the site during the period of excavation increased the possibility that the bench surface was thoroughly covered. However, some non-ring structures, with far less definite surface indications, may be undefined. A more complete recovery of this type of architectural remains could be made by surface stripping of large areas, perhaps with power equipment.

House structures are unevenly distributed over the bench, and occur in sufficient quantity to be termed a village (Dittert, et al, 1961, p. 48). Toward the center, on a low ridge, is a cluster of five houses - three ring and two non-ring types. A second set of two ring houses is found toward the north end and three more isolated ring structures occur south of the central cluster where they occupy the edge of the bench overlooking the river. This settlement gives the appearance of a nucleus, with outlying, more scattered houses north and south of it. Refuse indicates that the living area and work activities were centered around the houses, but some sheet trash also covered most of the intervening bench surface.

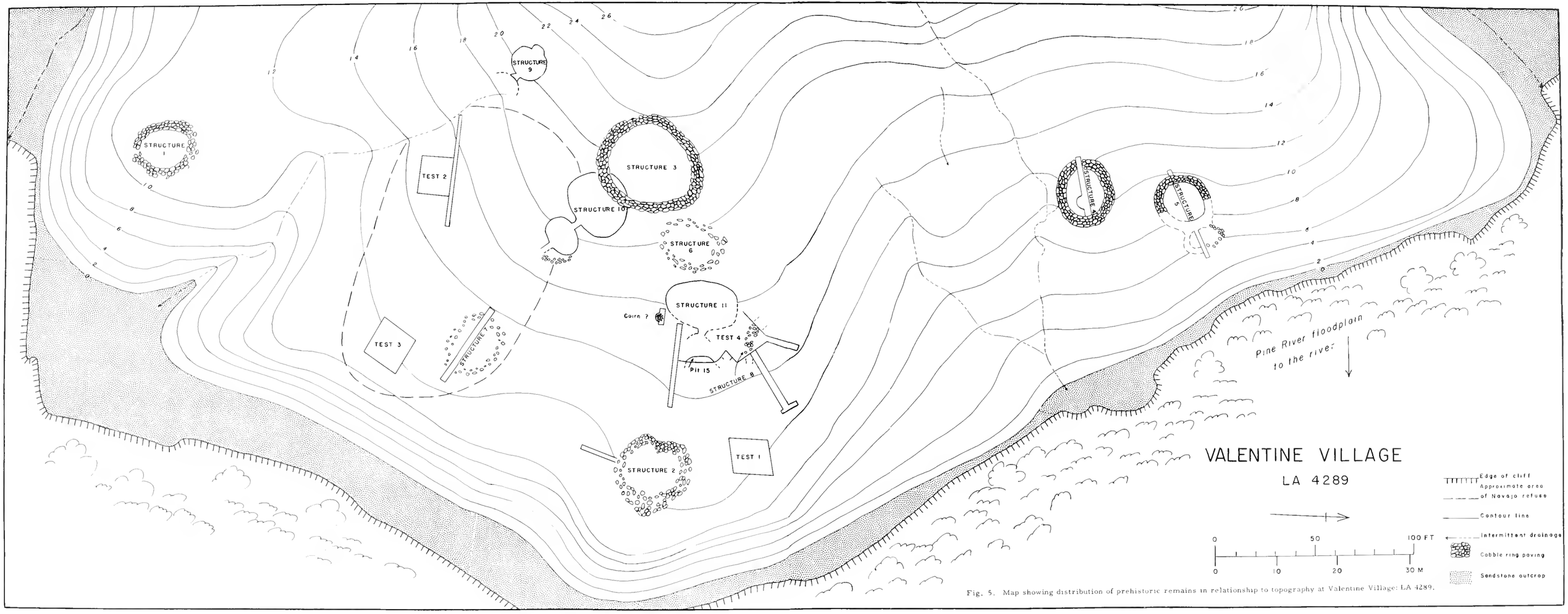


Fig. 5. Map showing distribution of prehistoric remains in relationship to topography at Valentine Village: LA 4289.

RESEARCH PROCEDURES

Since the Power Pole Site was the first study of a cobble ring site in the Navajo Reservoir District, there were no previous methods of excavation to use as guides. The first step was to clear the large, figure-eight shaped ring (Structure 1) of its sage cover and surface artifacts. Troweling was then begun along the inside of the east section of the cobble paving. Because there were no surface indications of a central depression, it was felt that the floor might be encountered at a very shallow depth. This hypothesis was verified when a bench was encountered on the east side of the main room. Following this surface down the inclined front of the bench, the shallow main floor was located. Next, a six foot wide trench was laid out, roughly on the axis of the two circular pavings, through what was later defined as a post-lined hallway, connecting a main room and an antechamber. When the general house fill was removed from this cut, a profile of the feature was made with a plane table and alidade, and final clearing planned. Following this, a broadside operation was instigated: cutting out the fill of the feature. Due to the shallowness of the fill (about one foot or less) it was spaded out as a unit, turned several times to examine for small artifacts, and hauled out by wheelbarrow (Fig. 6).

After the general fill was removed, except for those areas surrounding the power pole and guy wire, the floor was cleared by troweling and shovel stripping. The latter operation revealed a number of sub-floor pits which were excavated as individual units; the artifacts found were recorded separately.

One man was detailed to clear loose dirt and grass from between the cobbles for photography. The final procedure was to strip an area, three feet in width, around the outside of the cobble paving. Surface refuse was removed from this cut, down to and slightly into the sterile red clay which forms the natural upper stratum of the Pleistocene (?) site bench. This cut was made so that no exterior cultural features would be missed. After the house was cleared, a rectangular test was made through the cobble partition wall on the north side. This cut exposed remains of an earlier structure of small cobbles and rotted logs, Structure 3.

A detailed plan was prepared, using a plane table and alidade. The photographic record was made in black and white, as well as in color slides. Due to the size of the structure, overlapping panoramic exposures were made in order to include the entire cobble ring.

This excavation procedure was found to be adequate and was followed in later house excavations.

Two rectangular tests were excavated in the refuse area surrounding the cobble rings to obtain an accurate idea of the refuse depth, its nature and contents. These tests were spaded out in one level due to the shallow depth of the refuse, and exposed pits were excavated as separate units. Care was taken to remove all surface artifacts and loose drift vegetation before spading was begun, to prevent mixture of later material with the contents of the refuse.

Most of the excavation procedures utilized at Valentine Village were developed during the pioneer work at the Power Pole Site. In general, excavation dealt with visible architectural remains, predominantly the stone pavings, and, to a lesser extent, the concentration of adobe chinking. Surface manifestations were given non-cultural feature numbers. Additional remains were assigned designations as excavations revealed their presence. In the laboratory these feature numbers were given structure designations for purposes of the report. All pits found in, around, and under structures, were numbered consecutively as details of the architectural feature. However, for purposes of this report only pits found within the house floor area are described with their respective structure. Underlying pits, and those situated around the outside perimeter, are described in a separate discussion on exterior pits. Superstructure logs, when present, were sketched in the field journal

Fig. 6. Laborers removing interior fill from the main room of Structure 1, the Power Pole Site.

notes as an aid in interpreting the method of above-ground construction (Fig. 37).

Tests below the cobbles were made, in some cases, when excavation of a house was completed, to search for information on the nature of the paving and evidence of pre-house occupation. Results revealed the number of cobbles making up a ring paving, thickness of underlying refuse, and pits underlying both the refuse and cobble construction (Fig. 76).

Distribution of refuse generally was apparent on the surface; four rectangular broadside excavations were made to test this deposit. As an alternative technique, two east-west trenches were dug, but, in general, trenching yielded few results, either in information on the refuse, or in cultural remains. Site photographs were taken from the canyon wall behind the site, and from the opposite canyon wall (Figs. 7 and 4).

CONCLUSIONS

The cultural content of the Los Pinos Phase, as revealed by excavation, continues support of the survey interpretation, that these sites are a local variant of the San Juan Basket Maker II culture - particularly the Basket Maker of the nearby Durango District. When viewed as a whole, both the architectural and portable artifact sample is internally homogeneous and can be combined for purposes of descriptive presentation.

As suggested in the survey report, architectural similarities are found to structures in the Durango District, though there are significant differences in local details, such as the ring pavements. At least two house types are present: ring and non-ring. Excavation has shown that rings of cobbles, first noted from surface indica-

Fig. 7. General view of excavated structures facing east across the site bench, Valentine Village.

tions, are actually terrace pavings surrounding a house floor. It is these features which have been designated as ring structures. In addition, separate piles of burned adobes, which were recorded during survey as small jacal structures, have now definitely been defined as cribbed structures, and labeled as non-ring houses.

Although no associated ceramics were found in exterior sheet refuse deposits or ring structures, both fired and unfired pottery was found in two non-ring type houses at Valentine Village. Two categories are present, unfired gray ware, technically not true pottery, and fired brown ware, probably not of local manufacture. Twin Trees Plain, Chapin Gray, and Lino Gray, all of which would be expected on a distribution basis, are significantly absent. Since these ceramic types date as early as A.D. 450, the Los Pinos Phase correlates with other Basket Maker II manifestations, and may be older than A.D. 400.

Another approach to chronology is obtained from radiocarbon dates, which have been derived from Valentine Village at non-ring house Structure 10, and also from the fill of a ring house, Structure 4. The non-ring house dates at A.D. 321 $\pm$ 90, and this age appears to be very consistent with its estimated ceramic date of A.D. 200-350. A second radiocarbon date of A.D. 541 $\pm$ 80 dates the use of a ring structure as later than non-ring House 10, and extends the Los Pinos occupation into the Basket Maker III period. If this is a reliable date, trade sherds from the Mesa Verde and Chaco cultural centers should be found in future excavations at late Los Pinos Phase sites.

Common tool types are the grinding and milling stones, and heavy chopper-hammers. The former generally are found within houses; floor contact specimens show a distribution pattern around the periphery of the main room. The chopper-hammers are not commonly found on the house floors, but many specimens occur in refuse deposits. These distributions suggest that milling was an indoor activity, while use of the chopper-hammers occurred outside. Such a situation could arise through a sex division of labor and processing of different materials. Pressure chipped tools are uncommon, as are bone and textile materials. Evidence from cave sites elsewhere in

the Four Corners region implies that bone and textile artifacts may have been very common in the Pine River Section, but these are not readily preserved in the open.

Non-artifactual data is largely unanalyzed, and results will have to await study by biologist. The most abundant of this type of material are impressions of corn cobs, which indicate that gardening was practiced. Conversely, the general paucity of animal bone and projectile points may mean that little attention was given to hunting.

The large number of sub-floor storage pits, particularly within the non-ring structures, implies that a surplus of food was produced and stored against periods of non-production. Most pit cooking was done outside, but burned sub-floor pits indicate that at least some cooking took place indoors.

Preliminary excavations in the Los Pinos Phase indicate a developed sedentary village life, with an economy based on maize gardening. Although a few cultural ties are present with the Lithic Period or Archaic Desert Culture within the Reservoir District, most developmental affinities are with the later Rosa Phase of the Pueblo Period. The Basket Maker II, Los Pinos Phase, is representative of a developmental stage in which sedentary village life was crystalizing in the Southwest.

CHAPTER II

ARCHITECTURAL AND REFUSE MANIFESTATIONS

The discussions below abstracts a general pattern for house architecture, followed by a structure-by-structure description of all architecture and refuse recorded during the field work, principally a record of the work accomplished, detailing the preceding general statement. A very detailed description of two houses is given; ring Structure 1 at the Power Pole Site and non-ring Structure 10 at Valentine Village. These houses serve as proto-types for their respective architectural styles and other examples, described in summary, can be compared to them.

GENERALIZED ARCHITECTURAL DETAILS

Two house types are established, ring and non-ring. Applicability of the term non-ring is open to question, since some of these structures also show sections of crescentic cobble paving. However, on a general level, the difference between a structure completely surrounded by a cobble paving and one lacking this feature, or showing only a portion of paving, seems valid. Further differences have to do with interior floor details and ground plan.

Ring House Type

Ring structures generally are oval-to-circular in outline, with a minor figure-eight shaped variant (Structure 1, Power Pole Site and Structure 5, Valentine Village). A ring of cobbles is laid in a paving around an interior, shallow, basin-shaped, floor area. This floor is a use surface cut into the underlying bench clay and, at present, shows no plaster covering or evidence of tramp packing. Maximum depth of this depression occurs approximately in the center of the floor, and is occupied by a circular fire basin, rarely plastered (lower pit in Structure 1, Power Pole Site). The unplastered clay walls show a light reddish oxidized burning. Occasionally, cracked rock is found in these pits. The light burning and cracked rock suggest that these pits may have been used as warming pits, rather than as sites for large fires. This conclusion is comparable to that of Morris and Burgh (1954, p. 51).

Other sub-floor pits are found in the interior of the ring. Their arrangement generally is scattered, although one notable exception is found in Structure 1, Power Pole Site, where they occur in a semicircle around the north side of the main room.

Three forms are indicated: basin straight-sided, and, most common, undercut. Generally, pit walls do not show digging stick marks, burning, or plaster covering. In one instance, a collapsed mud dome wall was found in association with Pit 2, Structure 1, at the Power Pole Site. In appearance, all of these pits suggest sub-floor storage areas, and occasionally, secondary use for refuse disposal and burial. Circular-to-oval sandstone slabs, with flaked and smoothed edges, are interpreted as covers; possibly, some of these were used to cover the pit openings.

Both random and related post holes occur within the floor area. Random sockets may have held upright supports for the superstructure. Some alignments of post remains suggest that upright jacal partition walls once sectioned off part of the floor space, producing a two-room effect: main

room and antechamber. This room arrangement parallels the non-ring house type and the two examples of figure-eight rings. Some of these postulated dividing walls consist of double rows of posts, and may have been associated with intramural hallways between the two rooms. A basis for this hypothesis is found in the clear-cut example of intramural hall and cross-wall partition in Structure 1, Power Pole Site.

Other floor features found in this structure are a bench around one side of the main room, and a crescentic trench, filled with sets of parallel logs. No explanation is offered for the latter feature.

Superstructure covering is best exemplified in Structure 1, at the Power Pole Site, and is reconstructed as a cribbed-log dome, covered with chinking adobe, although the dome may also have been truncated with a flat roof. The interpretation of a cribbed superstructure is more fully supported by evidence from the non-ring houses, Structures 9 and 10 at Valentine Village. Evidence for this reconstruction is based on footing logs, chinking adobes in the house fill, log fall on the floor and in the house fill, and a lack of patterned upright support posts. No evidence of an entryway or smoke hole was found, but it seems probably that these necessary exterior openings were originally present. Based on parallels with the ground plan of Structure 10, Valentine Village, and Shabik-eshchee Village (Roberts, 1929), the entryway probably was in the antechamber, aligned with the intramural hall and main room fireplace. However, no formal break in the cobble paving was found for such an opening.

Non-Ring House Type

Non-ring structures are dumbell-shaped in ground plan, with two entirely separate rooms; circular-to-oval, connected by a postlined hallway. The ground plan is extended outward by sections of cobble pavings. Two examples show different arrangements. A patio paving lies around the lower side of an antechamber (Structure 10, Valentine Village); there is a three-quarter crescent around Structure 9, at the same site. Each room contains a shallow-basin floor, cut into the natural bench clay. Unlike that in the ring houses, this surface shows patches of burned, gray plastering clay, smooth-finished. Maximum depth of the floor occurs near the center of the room, and a circular fire basin is found in both main and antechamber rooms. Characteristics of this detail are the same as those in the ring houses, except that some basins are clay lined, and may have a collar rim.

Other sub-floor pits are found within the floor area. Generally, they are formally arranged, freeing the interior floor space from obstruction hazards. In two cases (Structures 9 and 10, Valentine Village) pits were located in a circular pattern around the periphery of the main room. Again, three forms are indicated: basin, straight-sided, and undercut pit profiles. Basin pits have subdivided into smaller groupings, in part based on constructional features: mud-dome pits, slab-lined pits, and very shallow dips in the floor. Dome-and slab-lined examples probably were used for storage; the shallow depressions may have been grain meal catchment basins, an inference based on the association of metates with Pits 3 and 13, Structures 11, at Valentine Village. Straight-sided and deep undercut pits are very common, and they occasionally show plaster coating and light-to-intense burning of their walls. Unburned pits probably were used for storage. The oxidized walls of others suggest that pit cooking actually took place within the house. Secondary use includes utilization as depositories for refuse and scattered human bones. Sandstone slab covers probably were used to cover the storage pit orifice.

Post holes occur in the floor area of both rooms at random or in clusters, as well as in the intervening space between rooms. Isolated post remains suggest upright supports for the superstructure. Alignments are interpreted as intramural hallways between the main and antechamber rooms. In Structures 9 and 11, Valentine Village, the intramural hall consists of two converging lines of upright posts. In Structure 10, the hall is parallel-sided. One clear-cut exterior hallway leads off the

antechamber in Structure 10, Valentine Village. It provides a suitable model for reconstruction of such features in the rest of the houses. Structure 10 also contains an alignment of three close-set posts in the main room, which could have been a screen.

Other floor features are a slab deflector in Structure 9, and step risers leading from the antechamber of Structure 10 into both the intramural and exterior hallways.

Superstructure covering is well illustrated in Structure 9 and 10. These are reconstructed as cribbed-log domes, covered with chinking adobe. Evidence for this is reasonably complete, and consists of cribbed plaster-coated footing logs standing two courses high, large quantities of fired chinking adobes in the house fill, log fall on the floor and in the house fill, and the lack of support post patterns.

House Type Comparison

General differences between the two house types, defined above, lie in their shape, cobble pavings, and a few interior features, such as partition walls and subfloor pit construction and arrangement. Despite these differences, there are many direct architectural parallels.

Ring houses generally are circular in plan; the two exceptions are figure-eights. However, the two-room effect in circular houses possibly was achieved by partitioning with a jacal wall across one end. Non-ring houses are all dumbbell-shaped, the rooms entirely separated by an interconnecting hallway. A paving of cobbles occurs with both house forms, but, in the ring style it completely surrounds the room, or rooms. Developmentally, the limited cobble terraces may possibly be traced into the full ring. Interiors of all houses are very similar, although the non-ring houses show many more sub-floor pits and, in two cases, a definite arrangement within the main room. Slab-lined pits have not yet been found in ring houses, but they may well appear when the excavated sample is increased. In general, the architectural tradition suggests two variants of house construction, which might be individual preference on the same time horizon, or represent developmental stages.

Similarities are found with some of the later Basket Maker III architecture outside of the Reservoir District: Shabik'eschee Village in Chaco Canyon (Roberts, 1929), and Mesa Verde (O'Bryan, 1955, pp. 55-61), are shallow pit houses consisting of a main room and antechamber, connected by a hallway. Other architectural comparisons may be made with the Basket Maker II houses reported from the Durango area by Morris and Burgh (1954). Here the postulated cribbed-dome super-structures, sub-floor pit construction and layout, and use of a heating pit are similar (Dittert, et al, 1961, p. 215), but antechambers are lacking.

A description of non-ceramic houses with a partial cobble paving was reported by More and Sample (personal communications, 1959) from their excavations on Florida Mesa. This mesa is located just west of the Reservoir District, between the Florida and Animas Rivers and excavations were carried out as a salvage project for El Paso Natural Gas Company. It is probable that non-ring structures at Valentine Village are related to these houses to the west. More and Sample did not observe ring style houses in that area.

THE POWER POLE SITE

House Structures

Structure 1:
Proto-type Ring Structure

This architecture feature is briefly described and illustrated in Dittert et al (1961, p. 214, and Figs. 62, 63). In that report, it is referred to as Feature 1, rather than Structure 1. The following description is the final and complete account.

SHAPE:

Figure-eight cobble paving surrounds a main room and a smaller antechamber

(Figs. 8 and 9). The main room has an irregular oval shape, flattened on the west side where it adjoins the smaller antechamber. The antechamber is irregular in plan, with an inward protuberance on its west side.

COBBLE PAVING:

A layer of water-rounded igneous and quartzitic river cobbles was the principal surface indication. The rock paving completely encircles the two floor areas in a figure-eight. Cobble rocks are 0.5 to 1.5 feet in diameter, and were selected from the natural deposits of gravel found on the Pleistocene (?) benches. The average size of these cobbles is larger than those generally found in the natural deposits, and therefore their arrangement sets them off from non-cultural occurrences. The paving is usually one stone high, and never more than two. It ranges from three to eight stones wide. The entire paving has been laid on a deposit of black refuse, which varies in thickness from 0.3 to 0.8 feet. The maximum refuse thickness is found under a section of cobble paving, between the two rooms on the north side of the house. This depth is revealed by a rectangular test dug through this portion of the cobbles (Fig. 15).

FLOOR:

Within the cobble paving are two shallow, saucer-shaped excavations, room floors cut into the natural red bench clay. Due to the fact that the structure lies on the sloping crest of a low ridge, the uphill sides of both rooms are somewhat deeper than the downhill sides, creating an asymmetrical basin oriented with the plane of the horizon, rather than with the slope of the ridge. There is no evidence of a prepared floor surface, and no definite hardness, due to tramp packing, is noticeable. The floor area for the main room is approximately 69.5 square feet, using the formula for area of a circle, and an average diameter. The antechamber contains 29.0 square feet; the total house floor area is 98.5 square feet, far larger than any other structure excavated in either site.

FIRE BASIN:

An irregular, circular, shallow depression, with nearly vertical sides and a saucer-shaped bottom, is located near the center of the main room. This pit, unlined, shows a light oxidized burning on its sides. This basin was filled with black re

Fig. 8. Structure 1, the Power Pole Site. View facing east with antechamber in the foreground.

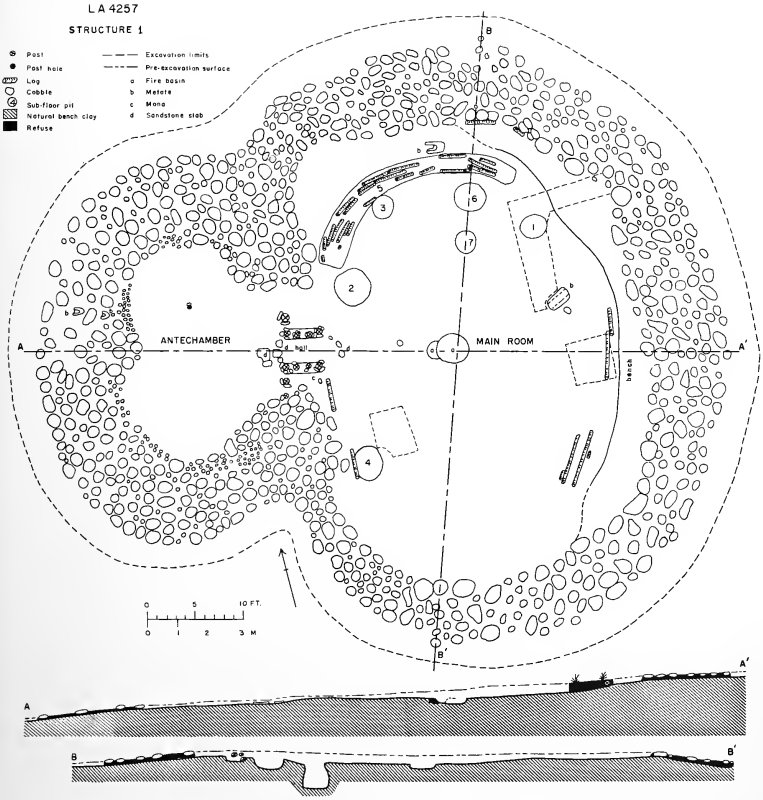


Fig. 9. Plan and profiles of Structure 1, the Power Pole Site.

Fig. 10. Cobble-ring pavement, north side of Structure 1, the Power Pole Site.

fuse, identical to the overlying general house fill; there was no evidence of ash or charcoal. Near the bottom the basin fill contained seven sandstone and cobble rocks.

Remains of a small, earlier, clay-plastered fire basin were discovered after the pit described above had been cleared. It is in the west side of the large fireplace, and only about one half of the depression remains. The missing portion probably was removed when the upper basin was originally excavated. The fill of the existing portion was red clay mixed with traces of charcoal, suggesting that it had been intentionally filled.

SUB-FLOOR PITS:

Six pits are in the floor of the main room, all toward the room periphery. Their alignment is generally parallel to the interior of the cobble paving and the log-filled trench (Fig. 11). This placement and predominant positioning in the north half of the room gives them a crescentic layout. Obvious advantages of this design are the large areas of unbroken floor space.

Floor pits are irregular, circular in plan view, with a variety of generalized profiles. Two are slightly undercut or bell-shaped (Pits 1 and 7), two nearly straight-sided (Pits 3 and 4), and two pits are roughly basin-shaped (Pits 2 and 6). None of these have clay plaster on their walls, or show any evidence of interior burning. The walls are smooth, and show no digging stick marks.

The fill of the pits varies from red clay mixed with hunks of charcoal, to small pieces of caliche clay and fragments of sandstone (Pits 3, 4, 6, and 7); others have a black clay content (Pits 1 and 2). Pit 1 contained two large, unmodified sandstone slabs on the bottom, which may have been slab covers. Some pits contain tools mixed with the fill (Table 2), and Pit 6 contained a single Rosa Gray sherd.

The non-refuse-filled pits may have been filled by washing after the house was abandoned, or by the house inhabitants. The refuse-filled pits probably were in use until the final abandonment of the house. The nature of the fill in these pits implies the possibility that not all pits were used concurrently. However, the basic layout suggests that they were planned and constructed as a unit. The absence of either burned sides or many hunks of charcoal in the fill, indicates that they were probably used for storage.

Several pits have specialized characteristics. Pit 2 contains a section of fallen

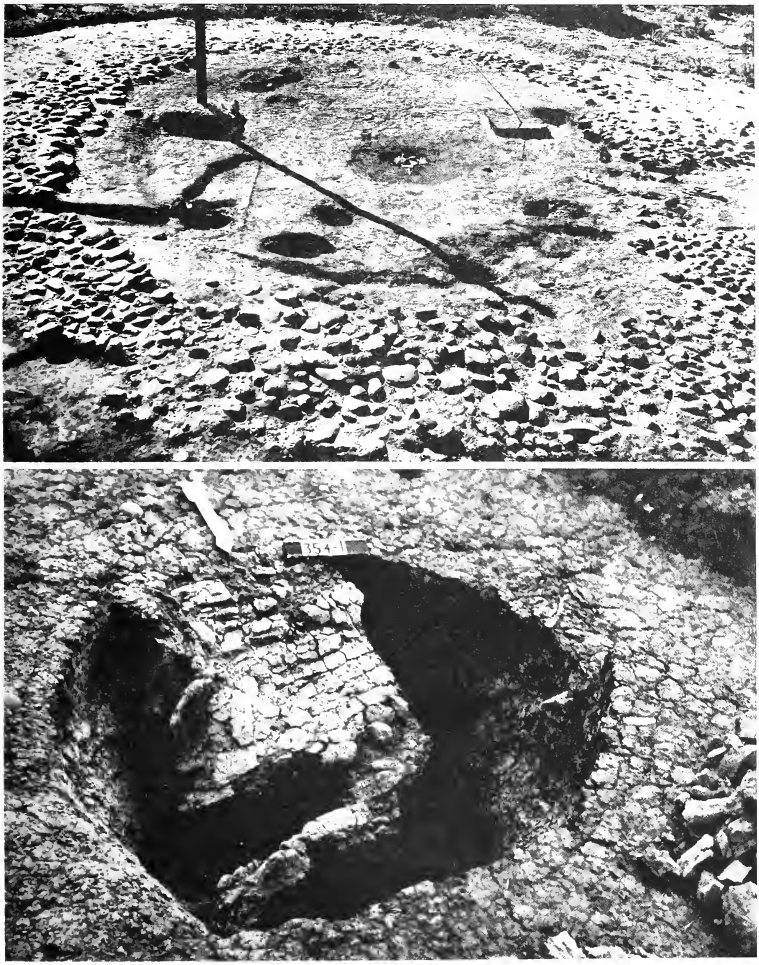


Fig. 11. Sub-floor pits in the main room, Structure 1, the Power Pole Site. (Upper), Arrangement of pits; (Lower), detail of sub-floor Pit 2 showing collapsed mud dome wall.

coursed adobe wall (Fig. 11), lying in the black fill. One end is against the south orifice; the other more than half way across the opening, 0.7 feet below floor level. Wall construction consists of nine courses of light gray adobe coils. Coil fragments are convex on top, concave on the bottom. In plan, they have a pronounced side curvature. The upper and lower curved faces show impressions of grass and other vegetable material, spread on the wet clay between each course of adobe blocks. Also, tunnels through the block fragments indicate that the clay was heavily tempered with grass. The block appearance of the adobes may be due to vertical breaks in the original courses, which possibly were laid up as a complete ring, like coils in a hand-made pottery vessel. This clay is the same as that used in wall construction, and is medium-well fired. The position of the wall fragment suggests that it once stood at floor level on the edge of the pit opening. From this position, it fell into the pit, as the pit was filling with refuse. The entire fill of the pit is mixed with large quantities of adobe blocks; in the west portion were a row of blocks, which appear to have been lip or rim pieces on the top of a wall. The intact section of wall, the crescent of rim adobes, the large quantities of block in the pit fill, and the curvature of the individual blocks, all suggest that the sub-floor pit was once rimmed with a wall at least nine courses high. Further, the quantity of blocks in the pit suggests that this floor-height wall may have leaned inward to form a partial dome covering, similar to the mud domes excavated by Morris and Burgh (1954, pp. 51, 52). A second pit (No. 4) contained adobe wall fragments in the upper fill, and may have been similarly surrounded with a floor-height superstructure. One of these shows impressions of corncobs.

POST HOLES:

Twelve small vertical holes occur within the cobble ring; one in the antechamber, and eleven between the two rooms. Each hole is lined with one to five sandstone slab wedges. All holes, except the one in the antechamber, contain the rotted butt remains of upright posts.

The random post hole in the antechamber may have been a socket for a supernumary support. Three alignments of posts, between the main and antechamber rooms, probably formed a short post-lined intramural hallway, and a cross-partition wall dividing the house rooms. The hallway is in a narrow gap, between two partition-like sections of the cobble paving; the cobbles project inward to separate the rooms. The hall is offset toward the south side of this gap. The floor of the hall is the surface of the red bench clay, and is lined with the rotted remains of four posts on each side. Both post alignments show a slight incurve toward the central hall axis, and the corner post holes are slightly larger in diameter than those intermediately placed. The butt remains of these posts are set in two parallel trash-filled trenches cut into the red sterile. It is inferred that the hall uprights were the main supports for flanking jacal walls, and may have supported a flat-topped roof. This passage conveniently connects the two rooms of Structure 1, and adds to the hypothesis that the entire structure was roofed (Fig. 12).

At the time the original east-west test trench was put through Structure 1, a mass of tan, unfired, hard adobe was encountered in the area of the intra-mural hallway. This material formed a slight rise above the surface of the red bench clay, and extended north-south to connect with the inward-protruding cobble paving. This led to the thought that, in one phase of hall use, a low ridge divided the two rooms. Another possibility is that it represents collapsed unburned construction clay from the hall roof.

Fragmentary sandstone slabs lie on the floor at both ends of the hall; five on the west end, and three small pieces on the east end. Although these showed no finished edges, they probably are the broken fragments of slab covers used to cut down air drafts at floor level.

A set of three posts, aligned in a north-south direction, is at right angles to the hall posts. These posts are not set in a trench, but otherwise are identical to those in the

Fig. 12. Postlined intramural hallway connecting the main and antechamber rooms, Structure 1, the Power Pole Site. Note slab fragments at either end of hall and the small slab wedges lining the postholes.

hallway. Their position indicates that they were supports for a jacal partition wall between the main and antechamber rooms. This cross-wall would have been tied to the west end of the hallway, and to the postulated domed super-structure of the two rooms.

OTHER FLOOR FEATURES:

Two architectural details, a bench and a log-filled trench, found in the main room of this house, are not duplicated elsewhere on either site. The bench, a long narrow rise in the excavated floor, runs along the east side of the main room, to merge with the slope of the floor on the north and south sides of the room. In plan view, it tends to be slightly irregular, thinning in the center. The back of the bench becomes the surface of the red bench clay which runs under the cobble paving. To the front, it drops off gently, merging with the slope of the floor.

The crescent-shaped trench, filled with sets of rotted logs, occurs on the north side of the main room (Pit 5 in Fig. 9) as a long rectangle, curved in an arch, paralleling the trend of the cobble paving. In cross-section, it is straight-sided with a flat bottom. The trench is cut into the red clay of the floor and filled with black refuse and rotted logs, horizontal and just below floor level. In some instances, the upper exposed surface of these logs has been burned. The remains of eighteen logs have been defined, in five sets of from two to six logs. All logs are parallel to the trend of the trench arch. Each set lies end-to-end, slightly canted to fit the trench curvature. No sure explanation can be offered for this anomalous feature. However, there is a possibility that the trench and logs were part of an earlier architectural structure, Structure 3, described below.

SUPERSTRUCTURE:

A superstructure can be postulated from two lines of evidence: sets of charred logs resting on the floor of the main room, and many fragments of baked chinking clay showing cast impressions of beams. The burned, horizontally laid, floor-contact logs exhibit the following significant characteristics: (1) a total of ten logs lie on the floor of the main room; (2) in three incidences they are found in sets of two to four parallel logs; (3) their positioning is always tangent to the curve of the immediately adjacent section of cobble paving; and (4) in no case are the logs lying in a position pointing toward the center of the large main room. It is inferred from this that the original log construction was cribbed. Additional evidence comes from several unburned rotted logs, recessed into the floor of the bench on the north side of the main room, adjacent to, and in some instances partially overlain by, stones from the cobble paving. It is thought that these represent a log foundation course set within the cobble perimeter.

A second line of evidence consists of fired chinking adobes, which were found both throughout the general house fill and resting directly on the floor. However, this evidence supports only the existence of log-and-mud type construction somewhere on the site, since they were not in direct association with any of the fallen beams, and must have been brought in with the house fill.

An argument opposing the roofing of this building is the engineering problem of spanning such a diameter. This conjecture suggests that some upright supports may have been employed without having been sunk into the floor. Also, the top of the dome may have been roofed with a flat top to reduce the height of the superstructure.

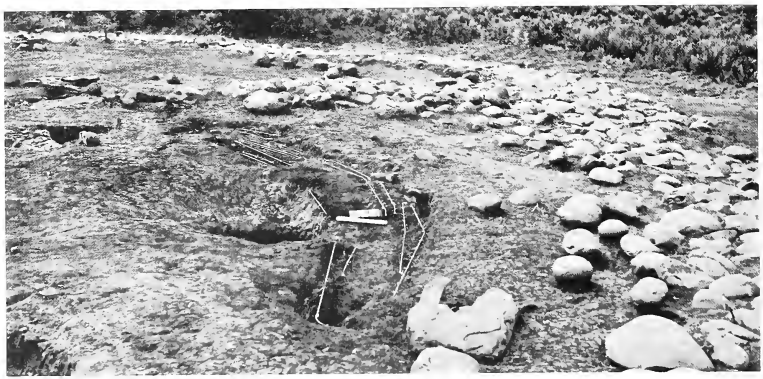


Fig. 13. Log-filled trench, Pit 5, in Structure 1, the Power Pole Site. String marks the position of rotted and burned logs lying at floor height within the trench fill.

HOUSE FILL:

A gray-to-black clay, containing a small amount of heat-fractured rock, some tool fragments, and many fired fragments of chinking clay filled the floor basin. No ceramic sherds were recovered directly from this material. The clay fill was slightly damp and had a gummy consistency, causing it to adhere to picks and shovels. It was fairly hard, and required picking before it could be shoveled out. As exposed in profile, it has a homogeneous appearance, with no noticeable evidence of laminated wash lines. The house fill and floor are separated by a thin zone of less stained clay, also homogeneous in appearance,which gave no evidence of washing across the floor. Other than its dark color, the house fill resembled the underlying natural red bench clays, and probably was derived from that source. The dark discoloration probably is a charcoal stain on the clay particles. When observed originally, the surface of this deposit was near the level of the cobble paving, and paralleled the slope trend of the ridge crest. In profile, it had a plano-convex cross-section with a maximum thickness of 1.2 feet on the east, or upslope, side of the main room, just below the bench drop-off. The refuse deposit thins to 0.5 feet on the periphery of the main room, where it gives the appearance of being continuous with fill under the cobble paving. Fill of the antechamber is similar to that described for the main room, but is very shallow, and contains somewhat less organic stain.

COMMENTS

No entryway is defined. Breaks in the cobble paving are absent, and the exterior trench encircling the house reveals no evidence of posts or wall openings.

Structure 1 is the largest cobble ring house recorded during the survey. Its description was used in the survey report (Dittert, et al, 1961) to aid in interpreting Los Pinos architectural remains. However, further excavations at Valentine Village indicate that, in comparison, there are some atypical features about Structure 1: the bench, log-filled trench, and the cobble-enclosed antechamber. Only Los Pinos Phase Structure 5 at Valentine Village, has a similar cobble outline.

Excavations suggest that Structure 1 was a large residence dwelling which could have housed an extended family of at least eight to ten individuals. Floor artifacts suggest that milling operations were performed in the main room, and the six sub-

floor pits were probably used as storage cists. Burned timbers and a fractured floor contact metate indicate that the house burned and was not re-occupied.

Structure 2

An irregular cobble ring lies thirty feet to the east, upslope from Structure 1. Although this feature was not cleared, a five foot test was excavated to the floor, near the center of the cobble circle (Fig. 14). The cobble paving was mapped from surface indications. Unlike Structure 1, it shows no surface evidence of an antechamber.

In shape, the ring is an irregular circle of paved cobbles slightly flattened on the southwestern arch. A section, 26.0 feet long on the west, upslope, arch is obscured by silt. The test exposed a rectangle of floor cut into the red bench clay, which at this locality is highly mixed with a whitish caliche. There is no evidence of clay floor plaster. A square floor area of 59.9 feet is calculated from an average diameter of 38.0 feet. These figures are derived from surface measurements taken inside the cobble pavement.

A third of a circular fire basin was exposed in the northwest corner of the floor test. The basin is unlined, with a light red burning on its sides. There is no ash, or cracked rock; no other sub-floor pits were revealed. Refuse debris filling the interior consists of a light gray sandy clay. No tool fragments or ceramic sherds were found in the fill, and few fractured rocks or fired adobes were encountered.

Fig. 14. Test pit excavated into the interior fill of Structure 2, the Power Pole Site. Basin metate rests on the floor and the west two-thirds of the excavation has been carried into the underlying natural bench clay.

Structure 3

After the excavation of Structure 1 was completed, a four by seven foot test pit was dug through the cobble paving, to reveal an underlying paving of small rocks, flanked by four horizontally laid rotted logs. When the feature was plotted on the architectural map for Structure 1, the projected trend of this earlier stone pavement agreed very well with that of other small cobbles in the large cobble paving surrounding the antechamber of Structure 1, (Fig. 9). The small cobble paving and rotted logs, exposed in the test through Structure 1, are well preserved by a covering of a maximum of 0.8 feet of black refuse, and the large cobble paving of Structure 1. Under the south side of the antechamber of Structure 1 were two more horizontally laid, rotted logs, one of which was sent to the Phoenix Memorial Laboratory for radiocarbon analysis. These logs also follow the projected trend of the small cobble paving. It is hypothesized here that the sections of small cobbles and six flanking logs are the remains of a house, Structure 3, stratigraphically under Structure 1. This reconstruction is illustrated in Figure 15. Much of the floor probably was destroyed during the subsequent digging for the construction of Structure 1.

The anomalous feature, Pit 5, a long crescentic-shaped trench, filled with logs, is described in conjunction with Structure 1; possibly it correlates with Structure 3. This supposition is based on its layout, since the arch of Pit 5 merges with the adjacent curve trend of Structure 3. If this is correct, Structure 3 also may have been laid out in a figure eight, but most of the main room obliterated.

The importance of Structures 1 and 3 lies in tracing the development of the cobble ring style of architecture.

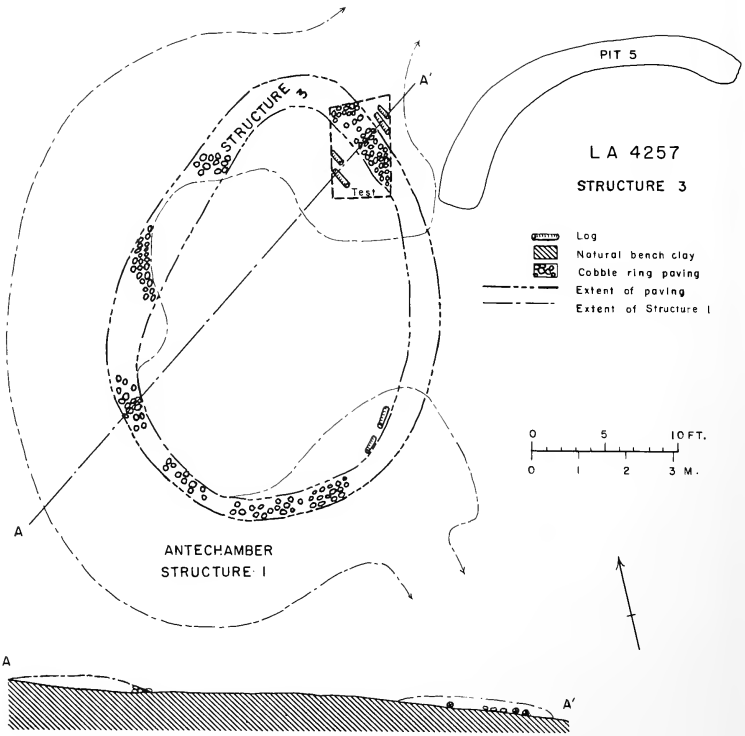


Fig. 15. Plan and profile of Structure 3 showing its relationship with Structure 1, the Power Pole Site.

Exterior Pits

Test 2 revealed two deep, undercut pits, one of which exhibits two phases of construction. These pits are similar to undercut pits found in Structure 1. They were dug into the natural bench clay, but show no digging stick marks or clay lining. Discovery came about after the overlying black refuse had been stripped off the old bench surface. Fill consists of a reddish clay, containing flecks of charcoal and a few fire-cracked rocks. No ceramics were present.

Pit 1 consists of two superimposed pits. The first is a fairly shallow, partially undercut pit, dug into the upper part of a second very deep undercut pit. The lower 1.8 feet of fill contains many large river cobbles. Two infant burials were found on the pit bottom (see Burials at the Power Pole Site) (Fig.73).

The north half of the rim of Pit 2 has a reddish-orange burning, extending 0.3 feet below the top of the orifice.

It is believed that these pits were originally employed as fireless cookers for steam baking of plant and animal foods, or for storage; and secondarily, for inhumation and refuse disposal.

The technique of pit cooking probably is similar to that employed by historic Apache Indians. Opler (1941, p.357) described this method as follows: a large pit is dug and lined with rocks; firewood is stacked in the pit and covered with more rock. The wood is then kindled to heat the rock. The food, plant or animal, is placed in the embers among the heated rock and covered with wet grass and earth until no more steam escapes. The term "fireless cooker," designates this method of cooking food without the direct application of flame.

If Pits 1 and 2 were used for ovens, then most of the hearthstones were cleaned out and discarded in the surface refuse. Neither phase of Pit 1 shows burned walls; the cooking stones may have been heated in surface fires. Pit 2 shows a burned rim, indicating that cooking fires were built inside. No storage in these pits is indicated by the finding of tool caches, although perishable articles could have been kept here.

In general, deep, early pre-ceramic pits, such as those utilized by the San Pedro Cochise (Sayles, 1941, Fig.9, and Eddy, 1958, p.33) show no burning of their walls. Later deep pits often will show this characteristic. It is felt that early pre-ceramic pits used hearthstones pre-heated in surface fires. At about the time ceramics were introduced into the Southwest, the heating fire was built directly in the pit. Both techniques were practiced at the Power Pole Site and at Valentine Village.

Surface Refuse

A large deposit of sheet refuse covers the entire site area, completely surrounding Structures 1, 2, and 3 (Fig. 2). This refuse has a general axis extending along the crest of the site ridge. Down the flanks of the site ridge the refuse deposit is irregularly bounded by shallow gullies which drain parallel to the ridge crest. On the west, it is cut by a county road near the base of the ridge. Surface color of the refuse is dark gray, and contains heat-fractured cobbles, fragments of broken tools, some waste lithic debris, and a few randomly scattered Pueblo sherds. Two rectangular tests were excavated into this deposit to determine its nature, depth and contents.

Test 1

Test 1 is a 10.0 by 20.0 foot parallelogram, stripped to the surface of the natural bench clay, having a thickness of 0.6 to 0.7 feet. The skeletal remains of a dog were revealed under the refuse. The skull and pelvis were 5.5 feet away from the long bones and ribs. Both halves were resting directly on the original surface of the bench, and probably belong to the same animal.

Fig. 16. Test 2 at the Power Pole Site, facing north up the Pine River Valley. Pit 1 can be seen in the outward jog to the right, and Pit 2 is in the center of the broadside. Rock removed from the excavated refuse lies piled to the right of the test.

Test 2

Test 2 consists of a large rectangle twenty feet square (Fig. 16). Again, the excavation was made down to the surface of the bench clay. The refuse, from 0.4 to 0.6 feet thick, contained approximately 200 pounds of heat-cracked rocks. Stripping disclosed undercut Pits 1 and 2 and a concentration of bird bones, partially articulated, lying in a shallow depression on the old bench surface.

Comments

Sheet refuse covering the site, identical to the interior fill of Structure 1, appears to represent decomposed organic waste, mixed with the natural bench clay. No concentrations of burned adobe wall chinking were observed on the surface, or exposed in broadside tests. No ceramic sherds were recovered from excavation. The cracked rocks probably are hearthstones, cleaned out of either deep earth ovens or undiscovered surface hearths. Tool fragments and knapping debris are discarded waste. The extensive nature of the refuse and its contents all point to a sedentary life at this site locality.

VALENTINE VILLAGE

House Structures

Structure 1

This structure is situated on the extreme south end of the site, overlooking an intermittent drainage gully and the Pine River (Fig. 17). The ring was cleared by James O. Marshall, concurrent with preliminary clearing and mapping of the site.

A circular paving surrounds a shallow, basin-shaped floor. On the northwest arch of the ring, there is a definite gap in the cobble paving; elsewhere cobbles form a fairly uniform pattern (Fig. 19). Generally, rocks are laid directly on the surface of the Pleistocene (?) bench surface, but black refuse is found between the individual rocks. The floor is dug into the natural bench gravel and shows no artificial surfacing. Many small pebbles protrude through the floor surface. Floor space interior of the cobble pavement has an average area of 34.2 square feet.

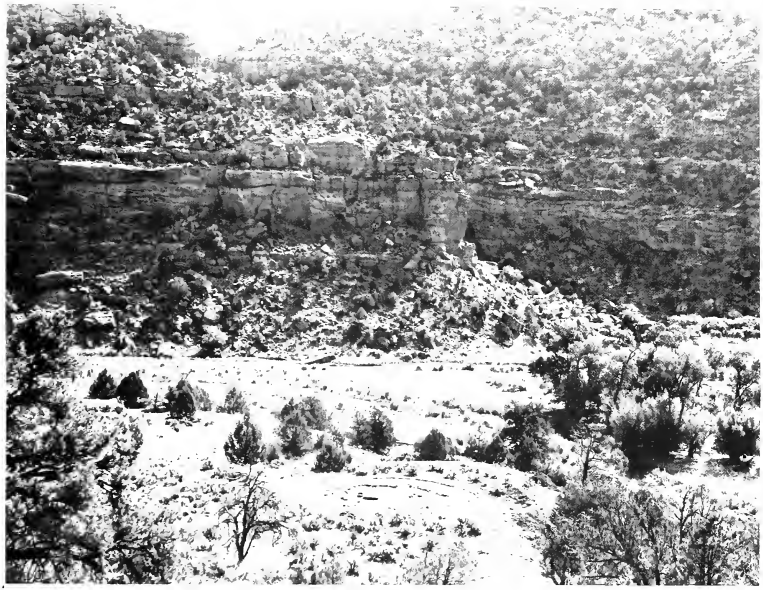


Fig. 17. General view of Structure 1, Valentine Village, showing its situation on the edge of the site bench overlooking the Pine River.

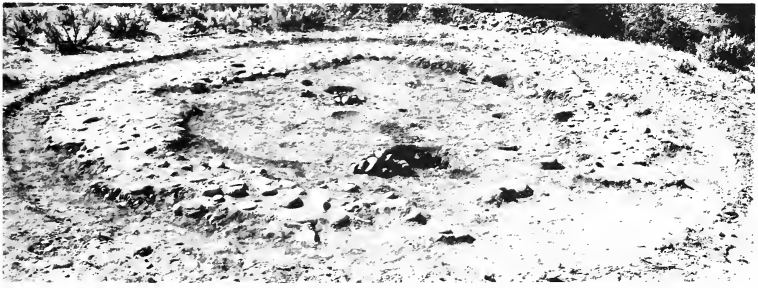


Fig. 18. Structure 1, Valentine Village. Rocks removed from excavation are shown piled on the floor next to Pit 1, foreground, and Pit 2, far side of interior floor.

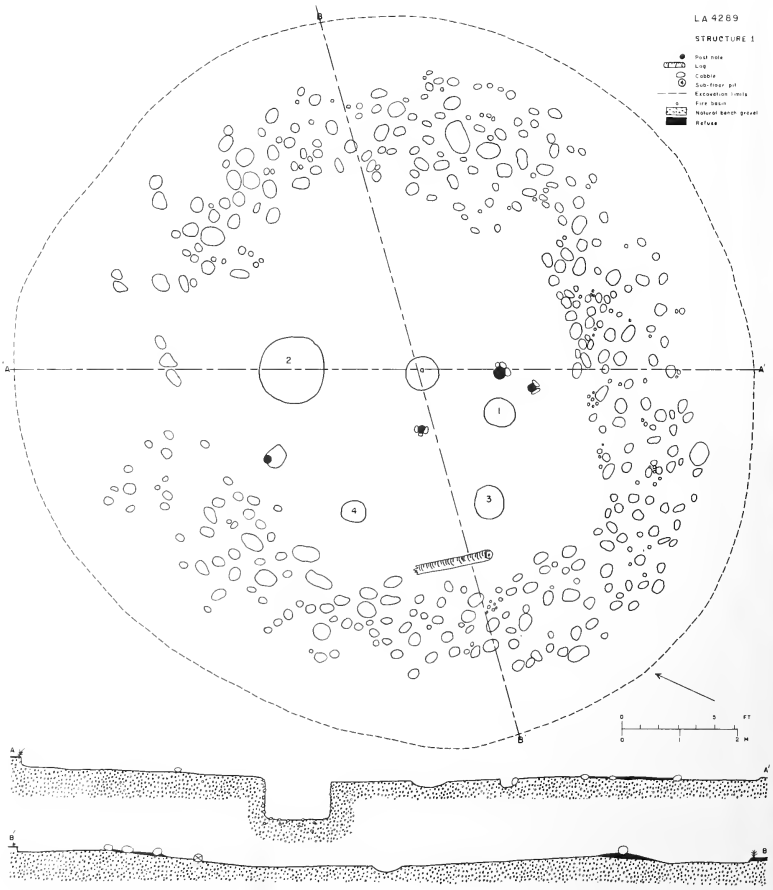


Fig. 19. Plan and profiles of Structure 1, Valentine Village.

Fig. 20. Structure 2, Valentine Village.

The fire basin consists of a symmetrical, circular basin, situated in the center of the lowest part of the floor depression. Its sides are not plastered, but they show a burnt reddish-orange color. The pit contained no cracked rock, ash, or other evidence of fire. Other sub-floor pits include three shallow basin depressions and one deeper, straight-sided pit. None of these has a clay lining, exhibits digging stick marks, or shows evidence of burning.

Four post holes, arranged in a zig-zag course from southeast to northwest, suggest the base remains of a jacal partition wall, just south of the fire basin, to separate the floor area into large and small portions, similar to the antechamber-main room layout of Structure 1 at the Power Pole Site.

Evidence of a former superstructure consists of a footing log and adobe chinking. The log rests on the floor in the southwest quarter of the house and may represent the basal course of a wall. Chinking adobes were found within the house fill and, occasionally, on the floor. However, none of these pieces of clay are in place; they may have been brought into the house after its abandonment. The house fill is a tan silty clay, stained gray by admixture with flecks of charcoal and other refuse.

Structure 2

This structure is located on the front edge of the site bench overlooking the Pine River. Excavation was supervised by Frank W. Eddy.

The encircling cobble ring is heart-shaped in outline and surrounds a shallow-basin floor (Fig. 21). The shape of this structure suggests a valentine; a term which is used to designate the site as a whole. The characteristics which contribute to the heart-shaped appearance are an inward protuberance on the west side, and a tapering mass of cobbles on the east.

The floor is excavated into the alluvial capping of the bench surface and shows no clay plastering or hardening. It has a surface area of 43.6 square feet.

A shallow circular fire basin is located in the bottom of the floor depression, in the approximate center of the structure. Sides of this pit are burned a light orange. Some fractured river cobbles lie in and immediately around this feature with a thin, rectangular sandstone slab immediately over the pit. The pit contained no ash, but was filled with the overlying house refuse fill.

Twelve randomly placed pits were excavated in, under, and immediately around, Structure 2. The underlying pits, Pits 1, 9, and 10, exposed by a sub-cobble test, indicate occupation prior to the time of Structure 2 (Fig. 76). Three pits, Pits 1, 5, and 7, occur inside the ring paving; all are undercut or bell-shaped in profile. Pit walls show no burning or digging stick marks, and are not plastered. They are cut into the bench alluvial capping and expose approximately a foot of clay. Below

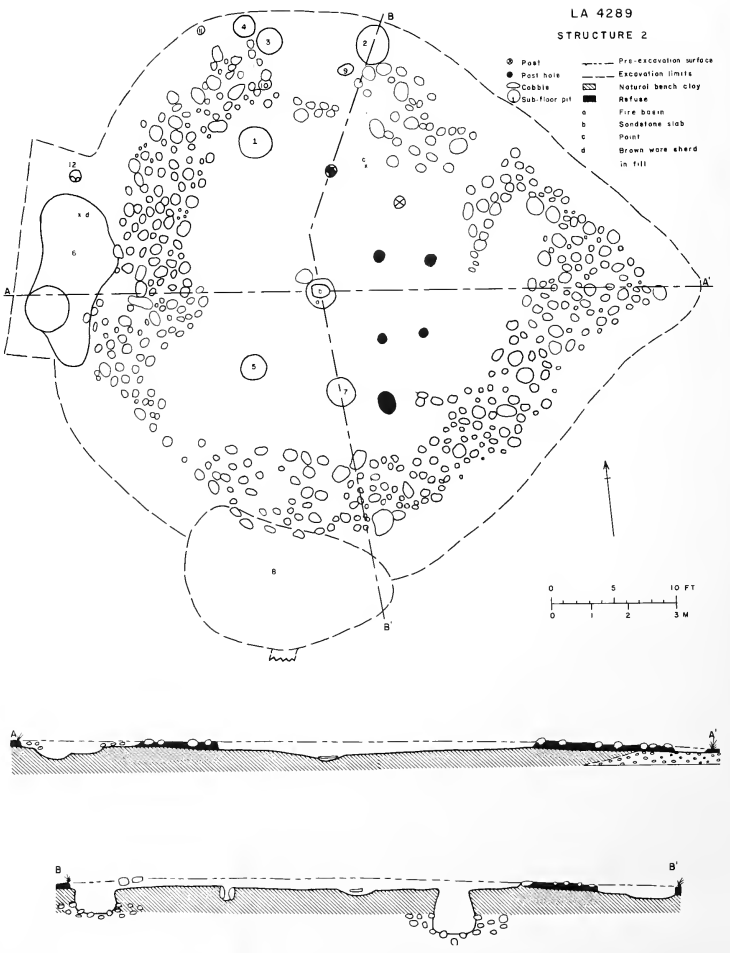


Fig. 21. Plan and profiles of Structure 2, Valentine Village.

Fig. 22. Interior house fill in Structure 2, Valentine Village. The faced cut is just east of the central fire basin.

the clay is a lower unit of river cobbles which protrude into the pit.

Six post holes, five of which are questionable, occur in the north and east half of the floor. Four of the holes are aligned in a rectangle, and may have contained supports for a post-lined hall linking an antechamber to a main room. Two others are randomly placed in the north part of the floor area. Only one hole contains the rotted remains of wood, and one is lined with three small sandstone wedges.

The interior house fill is hard blocky clay, stained a dark gray to black color as a result of mixture with charcoal (Fig. 22). In profile the fill shows no laminations or other structure, and appears to have been intentionally placed in the house by later occupants of the site.

Structure 3

A cobble ring paving structure is located on the crest of a low ridge in the center of the bench. It has the largest diameter of any such structure on the site, and is situated to command a view of the entire bench. The occurrence of this structure on top of Structure 10 is the most important stratigraphic finding on the site. Excavation was under the supervision of C.F. Schaafsma.

A symmetrical, circular-shaped paving surrounds a shallow-basin floor. Cobbles are fairly uniform in most of their distribution, but are sparse or missing in two areas, one on the north side of the ring, the other on the east (Fig. 23).

The paving encircles a pair of superimposed, shallow, basin-shaped floor depressions dug into the clay alluvial cap of the bench. At present they show no evidence of hardening, plastering, or additional modification. The basin shape is asymmetrical because the crest of the ridge has a slight dip to the east.

Both superimposed surfaces are toward the center of the floor area. This characteristic was noted when two super-

imposed fire basins, combined as Pit 6, were found in the center of the floor. Floor areas immediately surrounding these basins were slightly burned, and demonstrated the association of the respective basin and floor surface (Profile A-A', Fig. 24). Floor space within the structure runs to 65.7 square feet, the largest ring house area on the site.

The upper fire basin, associated with the upper floor, is burned to an orange-red color on its sides. A smaller, circular, basin-shaped pit lies just to the north of the upper pit in the lower floor surface. It has well-burned sides, burning extends onto the surrounding floor surface. The south side of the lower fire basin is cut away by the overlying fire basin. Fill of the lower basin consists of a dark gray ash, containing heat-fractured rock. The hearth is overlain by a red clay mixed with very fine flecks of charcoal. It appears that the occupants had covered over the lower fire basins and the surrounding floor area, to construct a larger fire basin while the house was still in use.

Fourteen randomly placed sub-floor pits were excavated in, around, and partially under (12, 14) the cobble paving of Structure 3. They are numbered 1 through 15, but Pit 3 was later re-assigned to the main room of Structure 10. Ten pits occur within the floor area, although they are not necessarily associated with the house. Three numbered pits, 8, 9, and 10, are questionably identified as post holes, and described below under that heading. Basin pits 1, 5, 7, and 15, are generally circular in plan with the exception of sub-rectangular Pit 1. Pit 5 had burned sides and was filled with ash and cracked rock. This pit certainly was a fire basin, and may have been associated with an occupation of the site prior to the time of Structure 3.

Pits 2, 4, and 11 are undercut. Pit 4 has some exceptionally well-preserved construction features and contents. The lower 2.5 feet is plastered with adobe, burned to a height of 1.6 feet. In addition, the walls exhibit grooves in the plaster, about 2.0 feet in length. The top of each groove is inclined to the left; the whole pattern progresses

Fig. 23. Structure 3, Valentine Village. Excavated rock removed from sub-floor Pit 4 is shown piled on the floor to the right of the pit orifice. Log course of Structure 10 lies to the right.

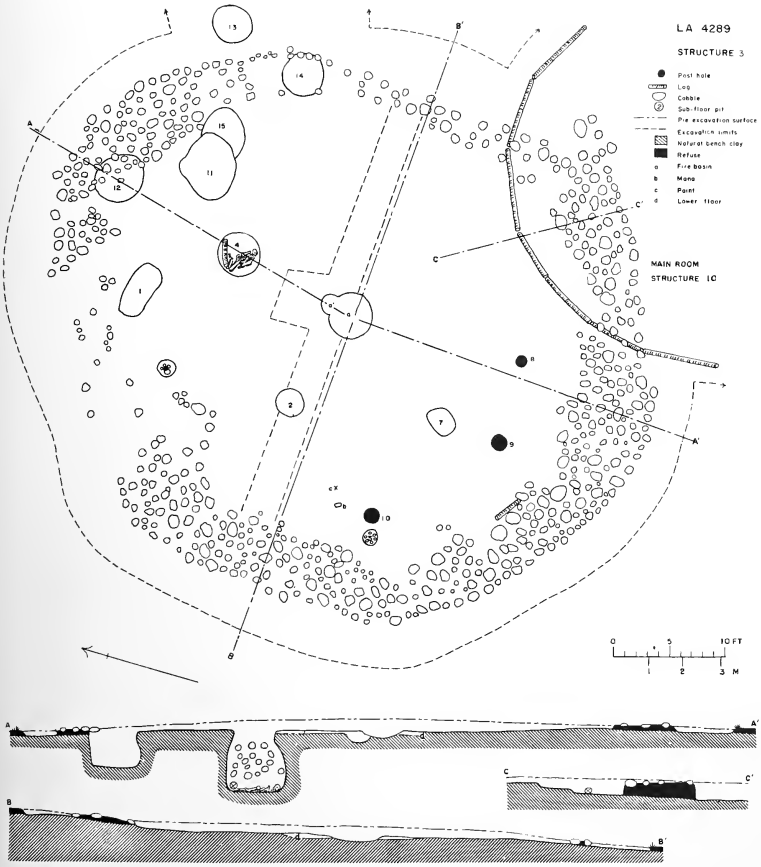


Fig. 24. Plan and profiles of Structure 3, Valentine Village.

in a counter-clockwise direction around the lower pit walls.

Reddish clay fill in Pit 4 contained an estimated 800 pounds of large river cobbles, scattered vertically through the central portion of the fill. Under this pile of cobbles, just above the pit bottom, was an associated human and dog burial (see Burials at Valentire Village).

Four possible post holes are located near the inside edge of the cobble paving, three in the southwest quarter of the house, Pits 8-10, and one in the north side. All are circular, basin-shaped pits. Three of these holes contain from one to four rocks, possibly to support upright posts.

Evidence of above-ground construction consists of a footing log (?), post holes (?), and burned adobe chinking. The questioned footing log rests on the floor, horizontally, against the interior of the cobble paving in the southwest quarter of the house. Its exact position on the floor plan is not recorded, because the rotted log was removed before plane table mapping was performed: approximate location is illustrated, and corresponds closely with a similarly placed log found in Structure 1. It is not known whether the log was recessed into the floor. Use as a foundation course with a cribbed-dome roof is a possibility, but cannot be verified.

The four questionable post holes described above may be the remains of upright post supports for an overhead super-structure. The third bit of evidence for a roof consists of burned adobe chinking. Found in the general house fill, it was not associated with the footing log.

Structure 4

This is a cobble ring structure situated toward the north end of the site bench, on terrain gently sloping toward the middle-front of the bench surface. Excavation, limited by time, consisted of one east-west test trench to define the floor profile. Gully erosion on the south side of the ring has stripped off many cobbles to reveal a large concentration of fire-cracked rock; probably a shallow-basin surface hearth. A charcoal collection was taken from the interior house fill; radiocarbon analysis was made by Isotopes, Inc.

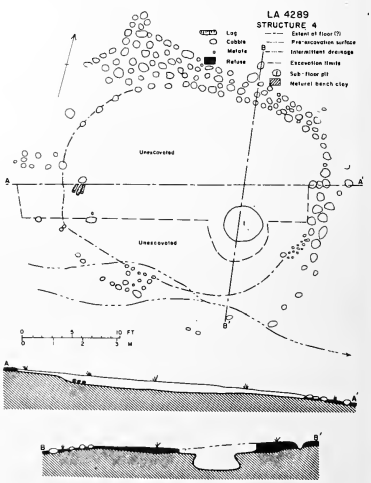


Fig. 25. Plan and profiles of Structure 4, Valentine Village.

Although only an irregular crescent of cobbles is apparent on the surface, rock paving at this structure probably once formed a complete oval-shaped ring, around a shallow-basin floor area.

The floor surface profile is revealed in the bottom of the east-west test trench. The surface is dug into the red bench clay, deeper on the upslope side of the house than on the downslope side. No surfacing or packing is present. A floor area of 39.3 square feet was computed from surface measurements taken of the ring pavement interior.

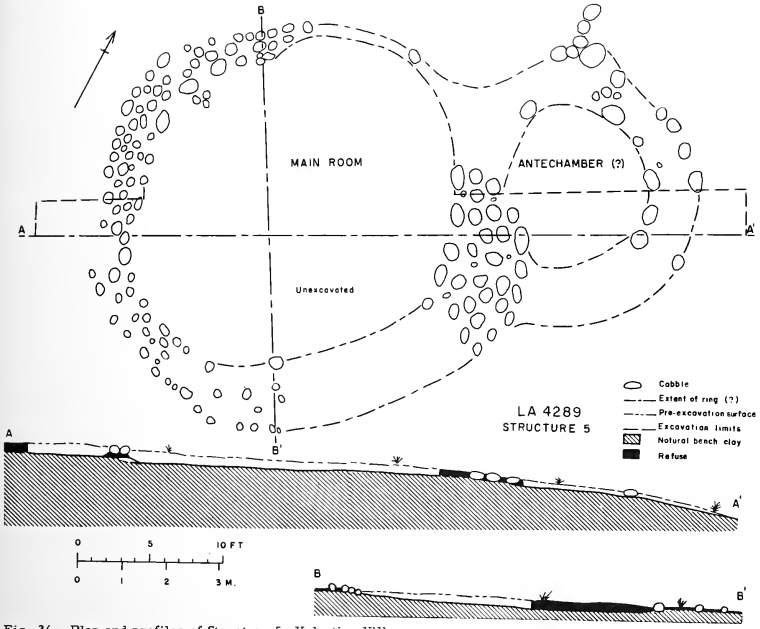


Fig. 26. Plan and profiles of Structure 5, Valentine Village.

No fire basin was encountered by trench testing, but one circular, undercut pit was intersected.

Three parallel charred logs lay adjacent to the west or upslope side of the house. They may be part of a collapsed dome super-structure. There is no adobe chinking adhering to these beams.

House fill consists of a dense hard clay, discolored dark gray or black by mixture with charcoal. No wash lines or other appearance of structure are indicated in the trench wall. The fill contains some rock and fired adobe chinking, but no sherds.

Structure 5

Structure 5 lies to the north of Structure 4. Again, time allowed only a brief trenching and floor stripping excavation. A northeast-southwest trench was dug, and the north half of the main room fill was removed.

A figure-eight shape is indicated, although the placement of remaining cobbles is very sketchy. This layout suggests a roughly circular large main room, with an adjoining smaller antechamber. The antechamber has so few cobbles left that its shape is hypothetical. Several cobbles on the north side of the antechamber form an exterior projection (Fig. 26).

The test trench revealed a very shallow, basin-shaped, floor profile within the cobble perimeter. This depression is slightly deeper on the upslope, or southwest end of the trench. The antechamber floor was not defined with any certainty and may be absent, due to near-surface erosion. Again,

no modification of the floor was revealed in excavation. A total of 48.4 square feet of floor space was computed for the two rooms.

Fill within the house was a very hard, light tan, silty clay, containing very little cultural material. Fired adobe chinking and sherds were lacking. The fill appears to represent surface wash carried in from upslope, even though no wash lines are evident in the profile.

Structure 6

A cobble ring structure is situated on the center of the crest of a low ridge which extends across the surface of the site bench. This structure commands a view of the surrounding site, and has maximum favorable drainage. Structure 6 is one of a cluster of five houses. All (Structures 3, 6, 8, 10, and 11) are on the crest of the ridge, but may not have been occupied contemporaneously. Excavation was directed by H.C.Greminger.

An oval-shaped paving of cobbles surrounds a basin-shaped floor depression. The cobble ring tends to be openly paved and irregular in outline. A section of very sparse cobbles occurs on the north and east arch of the ring (Fig. 28).

Within the ring is a shallow, depressed floor area. The basin is roughly symmetrical in plan and profile, with a fire basin at the lowest point. The floor surface does not show clay plastering or hardening due to use. Walls of the fire basin are lightly burned; charcoal and fire-cracked rock were found within.

Five other pits were discovered in, and under, Structure 6. However, only shallow basin Pit 1 is within the house; the remaining four pits (2-5) are under the outer perimeter of the cobble paving on the northwest arch of the ring. Due to the arch shaped alignment of these sub-cobble pits, it is possible that they are part of an undefined structure.

Six small post holes are in a double row alignment on the south side of the floor area; one other lies just to the north of this alignment. The aligned holes are paired opposite one another, and are lined with one or two small slabs of sandstone or little cobbles. No wood was found in the holes. Layout of these post sockets suggests supports for a double jacal partition wall. A small antechamber could have existed south of this postulated partitioning.

The floor depression was filled with a light, reddish-brown silty-clay. This material, homogeneous in profile, contained some fired adobe chinking, waste lithic material, and tool fragments; but no ceramics were recovered. Although no lines of deposition were visible in profile, the nature of the fill suggests that it washed into the house, possibly from upslope over the low cobble paving.

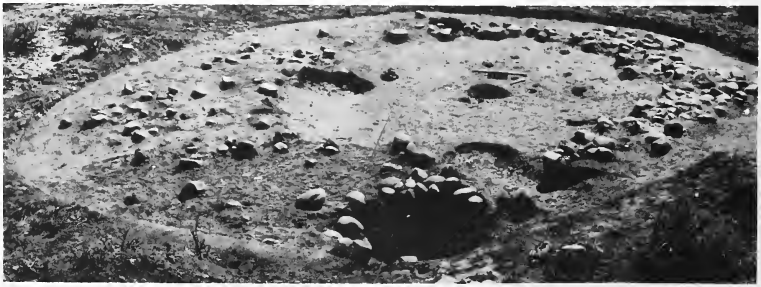


Fig. 27. Structure 6, Valentine Village. Photoboard and north arrow lie just beyone the fire basin. In the foreground of the excavation is the mouth of Pit 2, which underlies the cobble paving.

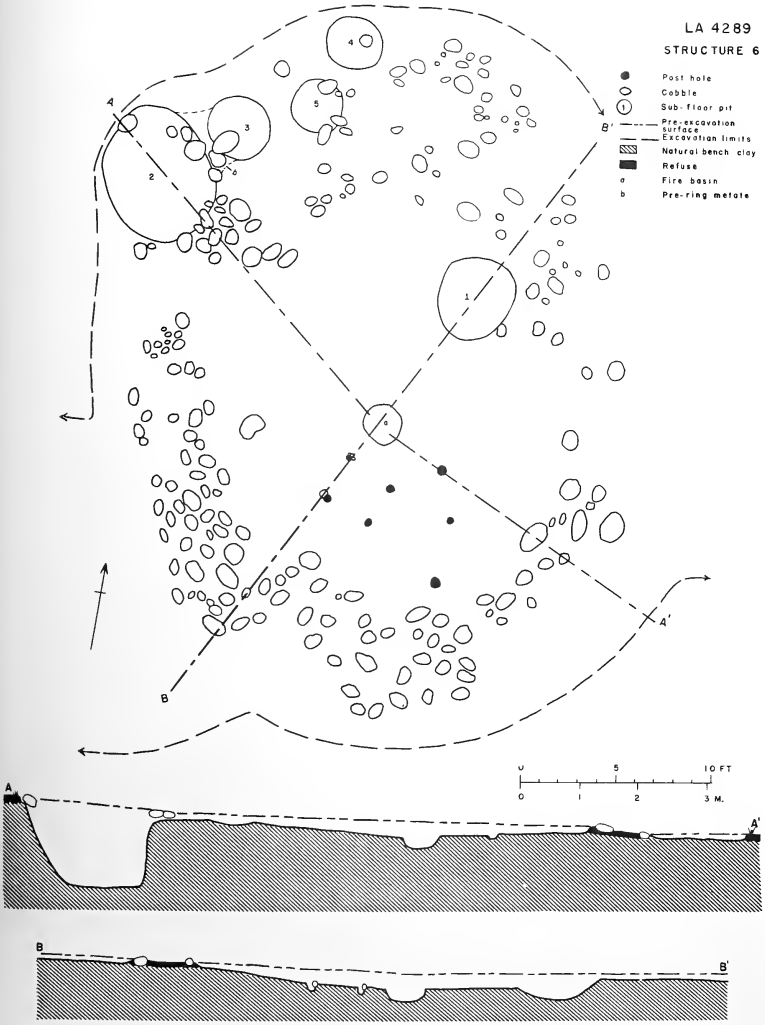


Fig. 28. Plan and profiles of Structure 6, Valentine Village.

Structure 7

This is an indistinct cobble ring structure located on the front edge of the site bench. Excavation consisted of one east-west test trench extending across the structure to define the floor profile.

The ring is an oval cobble paving, surrounding a shallow basin-shaped floor area. Placement of individual cobbles is very irregular, with many gaps in the paving as exposed through the ground surface

Excavation of the test trench, carried slightly into the bench clay, shows a very shallow basin-shape floor profile. The lowest dip is in the center; the slope of each side is approximately equal. No clay plastering, or hardening due to tramping, is discernible.

The floor depression fill consists of a dark gummy clay showing no laminations or other form of structure. Very little in the way of fired adobe chinking, waste lithic debris, or tools was recovered. No ceramics were encountered below the surface.

Structure 8

A square test in the trash, Test 4, exposed a questionable segment of a cobble-ring paving. In an effort to define this feature, two narrow trenches were excavated in a Y-shape from the north-east corner of Test 4. Time did not permit tracing the postulated paving, or complete excavation of the interior fill.

It is postulated that the paving was once a ring, completely encircling a basin-shaped floor. However, surface indications of a cobble paving could not be traced to complete a circle. Two groups of sparsely-spaced cobbles form the possible paving, and more cobbles occur downslope, in the extreme northeast corner of Test 4 and in the adjacent trench. The latter cobbles appear to be drift from the paving terrace.

The test trenches revealed a basin-shaped depression in the natural bench clay inside the postulated arch of the cobble paving discussed above; it probably represents a floor area. Maximum depth occurs toward the west end of the test trench. No surfacing or hardening is apparent.

The test trench walls reveal a dark gray fill, at least 0.9 feet thick. No laminated structure is apparent. Few pieces of fired adobe, rock, or tools were recovered from the trench.

Structure 10:

Proto-type Non-ring Structure

This is a non-ring structure, situated just below a slight crest in the center of the bench. The northwest corner of the main room is overlapped by the cobble paving, and a portion of the floor area, of Structure 3. The remains of Structure 10 were encountered when an exterior trench was extended around the south side of the cobble paving at Structure 3. Black refuse fill was discovered, and when the trench was lowered to find the bottom of this material, a log and adobe course was found. As more logs and adobe were exposed, it became quite apparent that a new underlying feature had been discovered. Subsequently, additional trenches were dug, to determine the depth of interior fill and to intersect the southern half of the structure. These trenches disclosed a new circular room, later defined as an antechamber to Structure 10. After excavation of Structure 3 was completed, work was resumed on Structure 10, under the direction of F. W. Eddy.

SHAPE:

The circular ground plans of two rooms form a dumbbell-shape. The main room is connected to a smaller antechamber by a post-lined hallway (Fig. 30).

COBBLE PAVING:

There is no ring or circular paving; however, a layer of cobbles forms a short arch at the downslope end of the antechamber. Construction of this feature is identical to the full ring structures, but the short paving of Structure 10 is composed, general-

Fig. 29. Panoramic view of Structures 10 and 3, Valentine Village. Main room of Structure 10 lies in the center and antechamber and paving to the left. A portion of ring Structure 3 lies to the right with cobbles removed from area of Structure 10, main room. Upright sticks indicate position of post and postholes.

ly, of smaller cobbles. Paving is laid on a thin deposit of black refuse, which also fills the spaces between the individual rocks. It is one stone thick, and varies from one to five stones in width. No other cobble paving could be found in association with Feature 10.

FLOORS:

Two basin-shaped floors occur within Structure 10. Each is circular in plan and has its maximum depth in the approximate center. Since the structure is situated just below the ridge crest on the upper flank, the upslope, or northwest portion of the main room and antechamber is deeper than the opposite portion of each room.

In general, the antechamber is shallower than the main room, and the interconnecting hallway is raised almost to the surface height. Prehistoric digging for these floors was begun slightly outside the log course, so that the logs are set partially below the original ground surface.

The upslope portion of the main room, and most of the antechamber floor surface, is coated with a thin layer of burned gray adobe plaster. Two large burned areas occur also in the main room. These areas show red and orange patches. If clay color is an adequate criterion of firing atmosphere, then this oxidation is in contrast to the reduced firing of the majority of the clay fragments found on the site. Floor plaster slopes up around the preserved periphery of the rooms to merge with a thicker coating of adobe covering the interior faces of the surrounding coursed logs.

FIRE BASINS:

There is a circular fire basin in the approximate center of each of the two rooms of Structure 10 which occupies the bottom of the maximum floor depression.

In the main room, the profile of the fire basin is symmetrical, while that in the antechamber is straight-sided, with a slightly concave bottom. Sides of the fire basin in the main room are the natural bench clay altered to a reddish-orange by burning. Fill of this pit is identical to the overlying house fill, and contains no cracked rock.

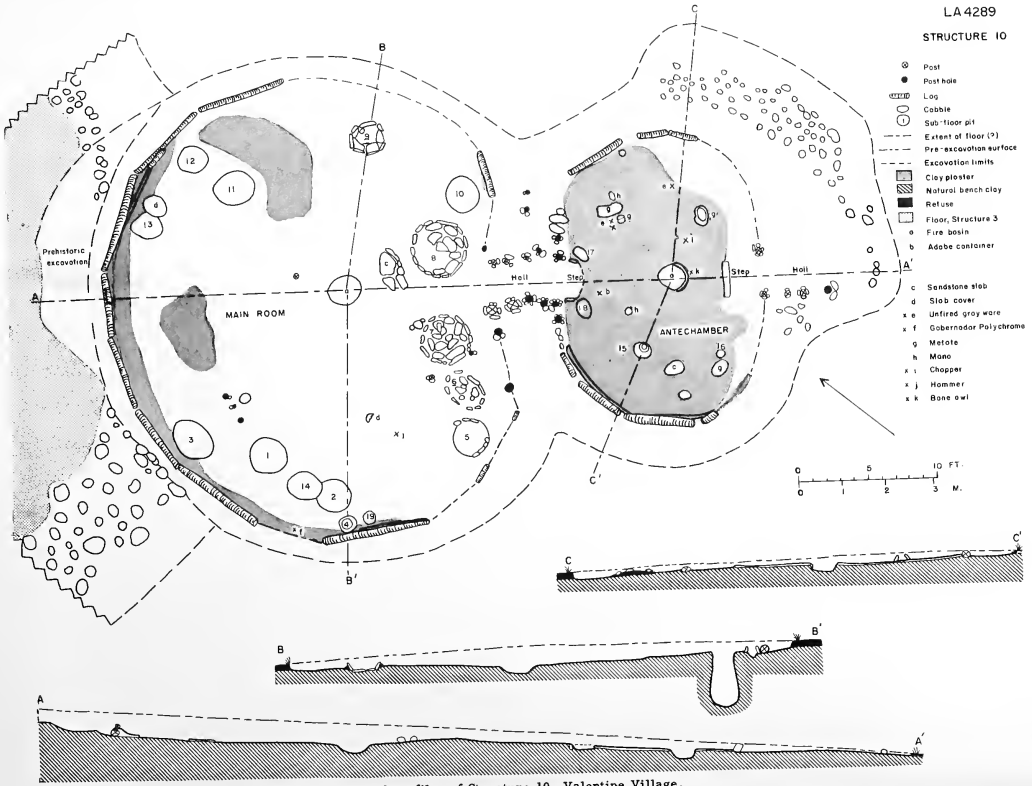


Fig. 30. Plan and profiles of Structure 10, Valentine Village.

The fire basin in the antechamber is smaller and the south rim is plastered to form a collar. The pit sides and bottom are uncoated and burnt to a reddish-orange color. Upon excavation, the fill was found to be identical to the overlying antechamber refuse fill, and did not contain cracked rock.

Fig. 31. Sub-floor Pit 4, Structure 10, Valentine Village. Note mud dome wall and position of pit next to the house edge.

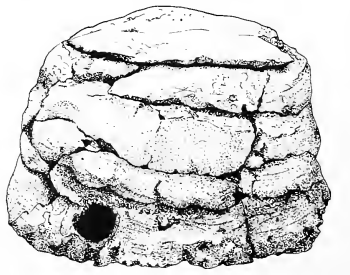
SUB-FLOOR PITS:

Nineteen pits are located within the floor areas of Structure 10. Four of these are in the antechamber, the rest in the main room. The pattern of layout and details of construction suggest that all are associated with the house.

All the pits are at the edge of the circular floor area, leaving the central space unobstructed. Fifteen pits in the main room follow a D-shaped pattern, following the curve of the house on the upslope side, and forming a straight line (5 - 10) on either side of the hallway. Basin-shaped, slab-lined Pits 7 and 8 flank the hall opening. Pits around the curve of the room form two clusters; one on the north side (11 - 13) and one on the west side (1-4, 14, 19). Within the antechamber, two shallow-basin pits (17 - 18) flank the hallway, and are opposed to Pits 7 and 8. Two other pits (15 - 16) are on the west side of the room.

Pits of Structure 10 are divided into three groups, based upon profile shape: basin, straight-sided, and undercut. Basin pits, those with sloping walls and concave bottoms, are further sub-divided: two pits (4 - 5) are mud domes with a basin-shaped sub-floor compartment and a domed wall above ground which increases the capacity. Pit 4 has a basin compartment cut into the natural bench clay, and is partially plastered with a thin coat of gray clay (Fig. 31).

Surrounding the orifice, at floor height, is a partly collapsed wall of coursed adobe coils, with a maximum height of three courses on the west side. Elsewhere only one or two courses stand. In profile (Fig. 30), the wall



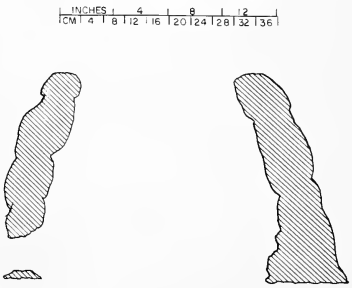


Fig. 32. Mud dome Bin 15, Structure 10, Valentine Village. Note clay lid and small opening for removal of contents

shows a definite inward cant on all sides. A projection of this trend indicates that the wall could not have been raised many more courses.

A second mud dome pit (5) within the same house, is very similar (Fig. 33), but has a sub-floor compartment that was altered during two stages of rebuilding. Initially, the basin shaped excavation was lined with small, thin slabs of sandstone similar to the slab-lined pits to be described subsequently. At a later date, yellow clay fill was placed in the pit to raise its bottom. The sides are plastered with a thin coating of fired gray adobe. A maximum height of two adobe courses is still standing on the dome wall, generally in a poor state of preservation.

A third dome, Bin 15, in the antechamber, consists entirely of the mud dome wall, and is lacking the sub-floor basin excavation (Fig. 32). This mud bin is a superb specimen, and stands full height. It is built of superimposed coils of gray clay, and tapers to a truncated cone shape. Four thick primary coils encircle the dome, and a fifth basal course runs part way around the dome on the downslope side of the antechamber floor. The coils taper on each end; a uniform height was maintained by adding daub patches to even out each course.

Finger impressions occur on the interior of the top coil where it was pressed against the lower course, but the clay has been smoothed, inside and out, partially obliterating the individual coils. The exterior surface shows parallel striations, as if a corn cob had been drawn over the plastic surface.

As the specimen was being cleaned and repaired in the laboratory, various vegetal impressions, including leaves, grass, small twigs, and corn tassels, were observed between the clay courses. Latex casts were made of one tassel. These vegetal impressions were not frequent, relative to the volume of clay, and they appear to have been added for tempering.

The constricted opening at the top is off-center with respect to the basal course, and it appears as if the structure slumped slightly while the clay was still plastic. There is a small, cylindrical hole in the basal course. This opening is smoothed, its edges out-flaring. It is located on the side of the bin facing downslope, or into the center of the antechamber.

Preservation of this wall is so complete, that after Structure 10 had been completely excavated, adobe Bin 15 was wrapped

Fig. 33. Sub-floor pits in main room, Structure 10, Valentine Village. Mud dome Pit 5 lies in foreground; slab lined Pits 6, 7, 8, and 9 are aligned back of Pit 5; and a pile of cobbles lies to the left of Pit 10.

with masking tape and the entire specimen lifted intact from the antechamber floor surface and transported to the Laboratory of Anthropology.

Use of the bin may have been for storage of food stuffs, of which corn may have been of primary importance. The small finished hole in the wall bottom may have been used to remove portions of food material without displacing a lid. If this is so, the hole is too small to pass a corn cob through. Shelled corn, other seeds, and beans would have been of a size suitable for withdrawal.

Striking parallels exist between this mud dome and a type of "above-floor mud dome" described by Morris and Burgh (1954, Fig. 26-e) from the Durango District. The lid to this dome is described elsewhere under "Other Uses Of Clay," Chapter III.

Basin-shape, slab-lined pits (6-9), circular to oval in plan, occur exclusively in the downslope side of the main room with no surrounding mud dome wall. In profile, these pits have a slight basin-shaped depression, lined with thin irregular slabs of sandstone. Sides of the pit are covered with slabs slanted inward and projecting above the floor surface. The slightly concave to flattish pit bottom is also covered with small slabs. However, two pits (6-8) have many bottom slabs missing. Pit 6 shows a thin coating of gray clay plaster on the bottom slabs.

A third grouping of basin pits (17-19) are very shallow dips in the floor; oval to circular in ground plan, they have very gently sloping sides. One of these (18) is plastered with a fired coating of gray clay;

really an extension of the antechamber floor plaster.

One straight-sided pit (16), in the antechamber, was cleaned out. It is partially plastered with a thin coating of gray clay, and shows a cylindrical form.

Undercut pits (1-3, 10-14) are the second most common profile type. All are exclusively within the main room. Plan view of both the pit orifice and the maximum diameter is oval to circular in shape. In profile, this type shows a constricted neck at the orifice, which sharply expands as the walls flare out to reach a maximum diameter near the pit bottom. An interesting variation in this type of profile is found, (11); it shows a long, nearly parallel-sided neck, which then expands sharply to a maximum diameter.

Three pits (2, 12, 14) have various portions of their sides coated with a fired clay plaster, whitish-gray on the surface and orange-red underneath. Thickness of this plaster varies from 0.05 to 0.1 feet: patterns of parallel slanting grooves are pressed into the clay. These grooves are both V-shape and U-shape, as if impressed with a digging stick, and, possibly, a human finger. They are angled both to the right and left, and run in panels around the pit walls. In one case (14) two sets of slanting grooves are tilted toward one another, to produce a herringbone pattern. Three pits (1, 2, 14) apparently were dug in sequence, because they intersect one another. By observation of the interior pit fill, it was deduced that Pit 2 was constructed, used, and filled. Pit 14 was then dug, intersecting Pit 2, only to be intersected at a later date by Pit 1, the final construction in this series.

Some pits contained a reddish-brown clay fill, with small flecks of charcoal; others were filled with ashy refuse. Items contained within this fill are burned adobe chinking, charred logs, and tools. Pits 1, 10, and 11 each contained several hundred pounds of river cobbles. Pit 10 also contained a large number of stone tools. Navajo sherds were removed at some depth (1, 2, 14) (Table I), and Pit 3 contained parts of a human cranium.

Fig. 34. Sub-floor Pit 12, Valentine Village. Note clay plaster lining.

Most pits and bins were probably used for storage, burned pits for interior cooking, and shallow basins as mealing bins.

POST HOLES:

Twenty-eight holes occur in the two rooms of Structure 10 and intervening area, eleven of which contain the rotted remains of posts. The post holes are small, circular, and sunk vertically into the natural bench clays. Many holes are lined with wedges, small fragments of sandstone slabs, or cobbles.

Within each room, some post holes cluster into sets. One such grouping is in the main room on the west side. Three close-set holes form a line, which trends northeast-southwest; these may have been for a screen. Other post holes within this room are randomly placed. Alignment of posts just outside the antechamber suggests an exterior hallway. At present, this feature consists of one northwest-southeast alignment of four posts. A fifth post, spaced 2.9 feet to the east, may be the only remaining post of a second parallel line.

Fifteen posts, between the two rooms, form an I-shaped pattern. This grouping consists of two parallel rows, five on a side, with four flanking holes, one to the side of each end of the parallel rows. This set forms a very convincing postlined hallway connecting the main and antechamber rooms. Alignment of the intramural hallway and the entryway hall is on the same axis and also

Fig. 35. Post lined, intramural hallway, Structure 10, Valentine Village. Upright sticks mark position of post holes flanking hall. Note small wedges lining holes. Main room lies in background and antechamber in foreground.

bisects the remainder of the structure. Two other post holes form a pair southeast of this hallway; they do not appear to tie in with the construction of Structure 10.

OTHER FLOOR FEATURES:

Two additional architectural details occur in the antechamber; one, at the antechamber end of the intramural hallway, consists of two parallel wall fragments of gray adobe clay. The adobe is finished on the outside by finger smoothing; the interior, between the two walls, is unfinished. Between these wall facings is a fill of black refuse, roughly similar to the overlying antechamber fill. It is inferred that the wall facings were connected and served as a retaining terrace for a step composed of refuse fill (Fig. 35), an aid to traffic moving between the lower antechamber and the slightly higher intramural hallway.

Another floor detail in the antechamber is a series of three small blocks of sandstone and one block of gray adobe clay. These blocks are in a row; all are tilted and held in place by refuse, on a line with the interior end of the entryway hall. This may have been the leading edge of a step riser to the entryway hall, or, it may have a deflector, similar to the block deflector in Structure 9.

SUPERSTRUCTURE:

Four types of evidence bear on superstructure reconstruction: (1) footing logs, (2) large quantities of chinking adobes excavated from the house fill, (3) upright supports, and (4) horizontal logs on the floor and in the house fill. Floor areas in both the main and antechamber rooms are partially surrounded by a polygonal course of rotted and burned logs. These logs are laid horizontally, end to end; and, in the better-preserved portions, are coated with fired mud on the interior facing. Within the main room, ten first course and two second course logs lie tangent to the circular floor. Position of the second course log fragments indicates that they were angled to the direction of the basal course, forming a cribbed pattern. Additional evidence of a second course is a groove showing impressions of bark and wood in the remaining adobe coating, an indication of more second course logs now rotted away.

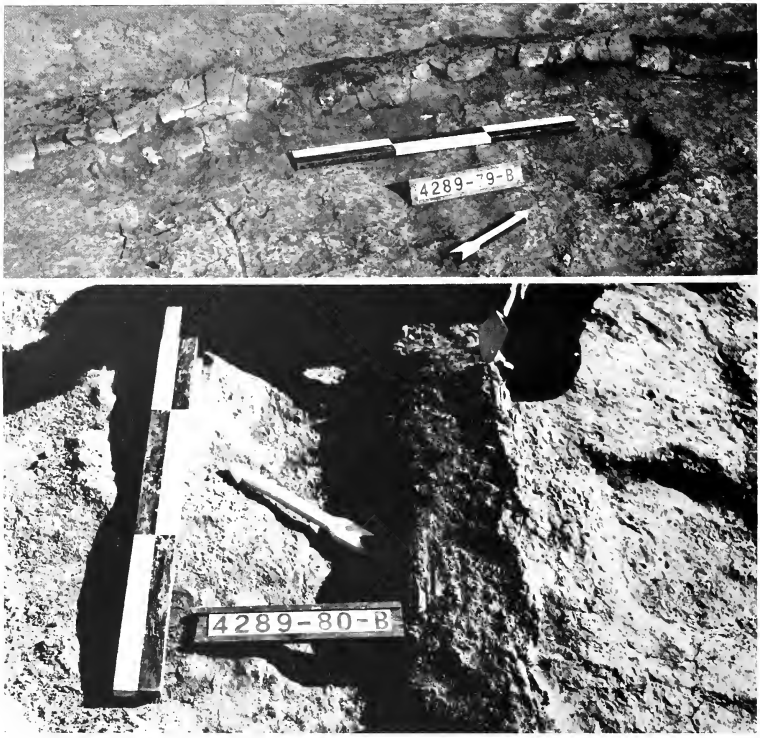


Fig. 36. Log and mud construction, north side of main room, Structure 10, Valentine Village. (Upper), Clay plaster coating interior face of log course; (Lower), close up of construction, trowel points to clay facing.

There were several hundred pounds of fired adobe chinking in the house fill. During excavation, this material was piled separately outside each room. The pile from the main room measured over one foot in height and six feet in length. Again the bulk seems to indicate that a superstructure mainly of mud had collapsed directly into the house. Very few chinking fragments were found outside the floor area.

Several types of upright posts, indicated by post hole sockets, probably served as support for the superstructure. Some are placed at random within the main room; eleven are aligned with the superstructure ground plan. Ten of these posts form part of the two hallways; one other is simply on line with the postulated ground plan of the main room. However, a support pattern, such as is found in houses of the later Pueblo Period, is entirely lacking. For this reason, it is felt that upright supports carried only part of the superstructure weight.

A large number of horizontal logs,

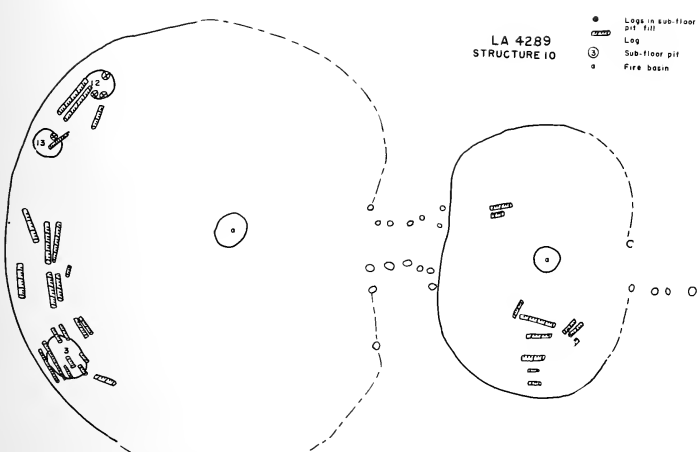


Fig. 37. Plan of Structure 10, Valentine Village, showing the sketched position of superstructure log fall.

burned, rotted, and generally in short sections, were found within the house fill and directly on the floor (Fig. 37). They were in greatest number in the upslope portion of the main room. Preservation was afforded by the thick house fill and the capping layer of Structure 3 cobbles. In general, these logs were parallel to one another, and tangent to the trend of the adjacent floor periphery. Logs within the main room fill were pretty much at the same absolute elevation, and the underlying floor dropped away from under the level of the log fall. This positioning probably occurred because the house was partially filled before the log mass fell, apparently as a unit.

Remains of the disintegrated superstructure suggest a log and adobe dome with the interlocking cribbed logs carrying most of the superstructure weight, and the upright posts and supports in the hallways probably supplying supplementary assistance.

HOUSE FILL:

A deposit of dark-gray to black refuse fills both the main and antechamber rooms of Structure 10, (Fig. 38). This fill is thickest in the main room, where it attains a maximum of 1.5 feet. In profile, it shows as a silty clay, and is gummy and compact enough to require picking before removal. When the damp refuse is first sliced through, the upper foot is very dark, while the lower 0.5 feet is a lighter yellow-gray, implying that the silty clay is derived from the natural bench clay, discolored by mixture with charcoal, probably during refuse disposal.

If this mixture was then dumped into the abandoned house, the lowest stratum of fill, containing less charcoal, may have resulted from people walking on the house floor before the refuse was dumped. The antechamber fill consists of black refuse, very dry due to proximity to the surface. The

house fill contains bone and stone tools, discarded tool waste, some bench cobbles, several hundred pounds of chinking adobes, rotted and charred logs, and ceramics.

COMMENTS:

This structure is the only house excavated which presents clear-cut evidence of an entryway, and a positive identification of the smaller room of the bi-lobed house as an antechamber. A small area of terrace paving around the antechamber entryway may represent the very beginning of cobble paving, found so extensively around the later ring structures. Interior architectural details show an orientation on an axis bisecting the main room fireplace, intramural hallway, antechamber fireplace, and entryway hall. This axis trends northwest-southeast, and parallels the slope of the ridge flank.

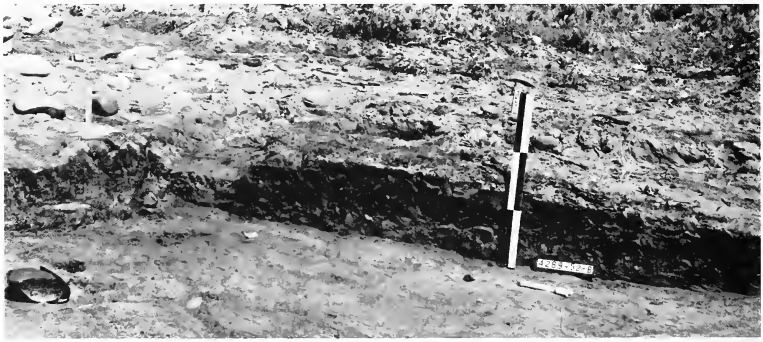


Fig. 38. Interior fill of main room, Structure 10, Valentine Village. Cobble paving of Structure 3 lies to the left.

Structure 9

Vague surface indications, consisting of fired chinking adobes and scattered paving cobbles, were located toward the rear of the site bench. Trenching revealed two phases of building construction, later defined as a partial ring over a non-ring house. Details of this architectural sequence are discussed under house stratigraphy. Excavation was supervised by F. W. Eddy.

The earlier house consisted of a large main room and an antechamber. The main

Fig. 39. Structure 9, Valentine Village. Facing west with postulated antechamber and second building stage paving in the foreground. Main room and recess are in the back of the excavation. Upright sticks mark position of post holes.

room has a rectangular recess on the upslope, or northwest, side, and is attached to the antechamber by a hallway. Shape of the antechamber is not entirely apparent, due to surface erosion, but part of a curved wall is present where the intramural hall attaches. The resulting ground plan is a dumbbell shape (Fig. 40).

A second building phase is postulated on the basis of an irregular semi-circular paving of cobbles which surrounds the main room for three-quarters of its circumference. Cobbles are distributed around the downslope side of the structure and are superimposed over part of the earlier burned antechamber floor area. The resulting design is a circular one room house with a partial cobble terrace.

Inside the cobble paving, bounded by the remains of an encircling superstructure of logs and adobe, lies a basin-shaped circular floor. The surface was excavated into the natural bench clay which slopes fairly steeply, so that the upslope, or northwest house recess, is cut more deeply than the southwest portion of the floor. Clay surfacing occurs in patches around the perimeter on the upslope side of the main room. The fired adobe plaster curves up to merge with the adobe chinking which coats the interior of a basal log course. The clay plaster, a gray color, perhaps due to incomplete firing, is spread on the floor about 0.05 to 0.1 feet thick. No fingerprints were observed; the smooth finish may have been produced with either a floor polisher or small convex mano.

The antechamber floor is preserved only in the area underlying the cobble paving. It consists of a surface cut into the bench clay. Reddish burning indicates that the first phase building, including the antechamber, was destroyed by fire. One very small patch of gray plaster occurs on this surface.

Approximately in the center of the main room, at the bottom of the floor depression, is a squarish fire basin. Its unplastered sides are a light pink in color due to burning. The basin contains the same black refuse that forms the house fill. No cracked rocks were present. No fire basin was found in the area of the postulated antechamber, although trenches were excavated in this area.

Twelve pits were defined in, and immediately around, Structure 9. All but two of these are within the house area in groups around the perimeter of the main room, leaving the center of the house unobstructed.

Basin, straight-sided, and undercut profile forms are present. The basin-shape pit, (10), is oval in plan view, with inward slanting sub-floor walls, and an above-floor coursed adobe wall (Fig. 41). Construction

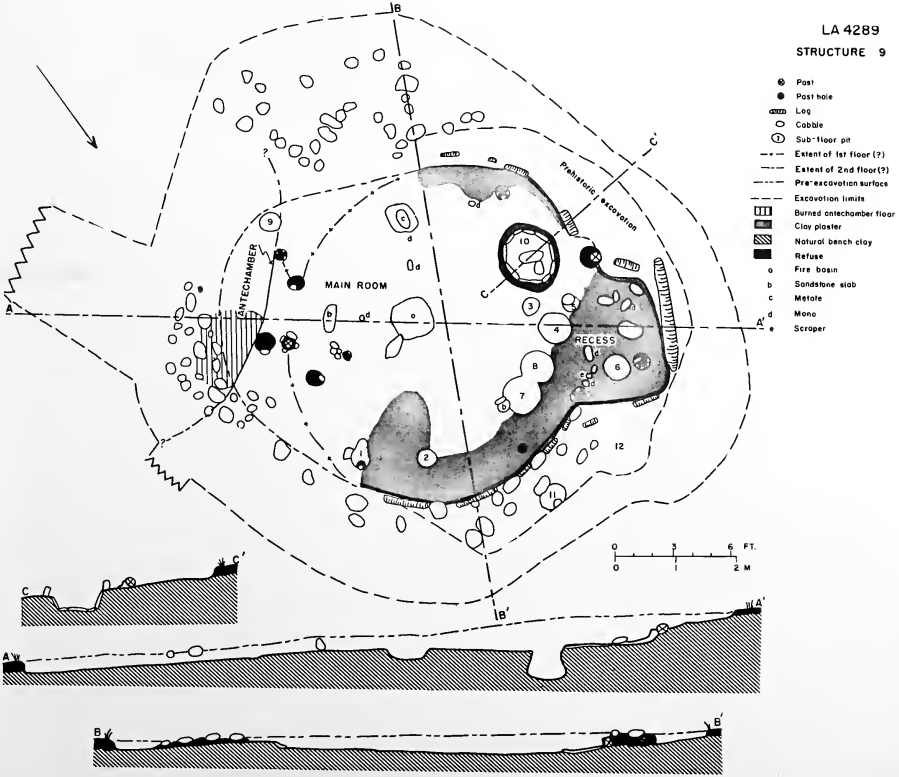


Fig. 40. Plan and profiles of Structure 9, Valentine Village.

Fig. 41. Sub-floor Pit 10, Structure 9 Valentine Village. (Upper), exterior of pit showing mud dome wall and fired adobes taken from interior; (Lower), closeup of pit interior showing slab lined construction.

consists of a basin dug into the natural bench clay. Sides of the below-floor pit are steeply slanted, and lined with thin overlapping sandstone slabs and a clay plaster, some covering the slabs, some applied directly to the natural clay wall. In place, around the edge of the pit orifice, is a coursed adobe wall, leaning toward the center of the pit to form a mud dome. It is composed of adobe coils, fired by the burning of the structure. The wall on the south side of the dome is standing to a maximum height of four courses; probably it once rose higher.

Each course is composed of a coil of adobe, broken into individual blocks by vertical fractures across superimposed rings. Each fragment has a rectangular outline, flexed to match the arch of the dome circumference. A profile of the coils shows a convex upper, and a concave lower face, which interlocks with the overlying and underlying coils. No vegetal impressions occurred between courses, such as was observed at Pit 2, Structure 1, at the Power Pole Site.

Three pits (1, 2, 9) are straight-sided, and their interiors closely approximate a cylinder. Pits 1 and 9 have no interior finishing. Pit 2 shows patches of gray wall plaster, and some areas of light orange where the unplastered pit walls were burned. Pit 1 has a questioned post hole in one corner.

Undercut pits (2, 4 - 8) are most common. Pits 3 and 6 have clay plastering around the pit neck, continuous in Pit 6 with the surrounding floor plastering. In addition, the plaster of Pit 6 shows parallel slanting grooves pressed into the clay. Two pits (7 - 8) probably were not contemporaneous, as they intersect one another. However, their order of construction was not determined.

Twelve slab-lined post holes occur in the main room floor, only two of which contain remains of upright posts. A group near the antechamber may form part of a post-lined hallway connecting this room to the main room. It is funnel-shaped, expanding toward the antechamber. Post holes in the main room recess may have served as upright supports for a horizontal roof cover for the alcove. Intermediately-placed post holes may also have housed upright supports.

A rectangular block of sandstone rests on the floor, tilted on one edge. This thick object lies southeast of the fire basin, on a line between this basin and the postulated antechamber connecting hall. Based on comparisons with similar features in later houses, this slab may have served as a draft deflector.

Four types of evidence bear on superstructure reconstructions: footing logs, large quantities of chinking adobe in the house fill, upright supports, and horizontal logs lying on the floor and in the house fill.

Ten horizontally placed footing logs and two second course logs lie end-to-end and tangent to the curve of the house floor, forming a polygonal ground plan (Fig. 40). First course logs are set toward the edge of the floor basin, cut into the sloping ground. On the north wall this is at the bottom of the cut; in the back of the main room recess it is at the top. This is unlike the Durango Basket Maker II houses, which had footlog channel grooves to seat the lowest log course (Morris and Burgh, 1954, Fig. 7).

The beams are almost all rotted, and partially charred; in most cases the interior surfaces are coated with gray adobe. This coating merges with the much thinner clay floor plaster and, on the northeast wall, stands two courses high. The finished face of each chinking adobe shows horizontal finger marks, used to smooth the clay onto the log. On top of the chinking is a groove parallel to the trend of the preserved footing logs; it shows impressions of wood and bark. This once seated a second log course; the layout of the two log courses, and a chinking adobe groove, indicate a cribbed overlap.

Evidence for full height superstructure is an estimated 150 pounds of burned chinking adobes extracted from the house fill. The very large bulk would seem to indicate that much of it was derived from superstructure collapsed into the house interior.

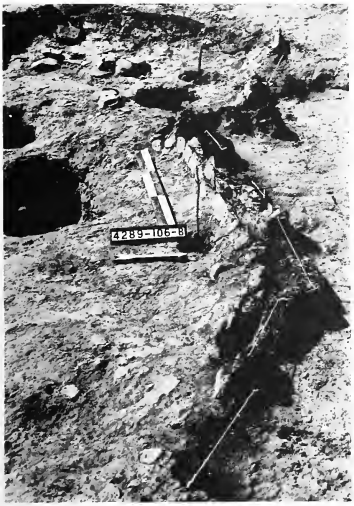


Fig. 42. Detail of log and mud construction, Structure 9, Valentine Village. Note chinking plaster coating the interior of the logs. Upright sticks mark the position of post holes.

Chinking adobe fragments are roughly triangular in cross-section. Two faces show impressions of an upper and lower log, while the third face shows finishing by finger smoothing. Finger marks indicate that the hand was usually pulled across the clay surface parallel to the direction of the log. Four specimens taken from the house fill show a series of finger tip impressions, as if the plastic mud had been tamped in between the logs with jabs of the extended fingers. This characteristic has been described by Morris and Burgh (1954, p. 50) as pointing the log joints, using the finger tips as trowels (Fig. 52).

Many adobe chinking specimens show clear impressions of corn cobs and coiled basketry fragments, generally on the reverse side of a finger finished surface (Fig. 66). This suggests that some of the larger gaps between superstructure logs were filled with corn cobs and discarded basketry fragments. At least one such specimen shows exterior finishing with a corn cob. Both daubing prints and smears leaving lateral striations are represented. All preserved chinking adobes are fired, generally to a gray-to-black color. Occasionally, brick-orange pastes can be observed. Some specimens show vegetal impressions, including corn husk prints, intermixed in the clay as a tempering material. Many air holes appear to have been produced when vegetal temper burned out of the clay.

Upright supports, such as those described for the possible post-lined hallway, random posts in the main room, and support posts in the recess alcove, indicate the former presence of a superstructure covering. The positioning of the recess post holes, and the rectangular shape of this alcove, suggest that its sides may have been more vertical than those of the main room; and also, that it may have had a flat roof.

A fourth line of evidence of a superstructure consists of four horizontal logs lying in the house fill just above the floor, and two lying directly on the floor. They all are short sections, no more than a foot or so in length, and show no specific orientation. It is inferred that they are the remains of the collapsed superstructure.

Deposition, filling the interior house basin, consists of a dark gray-to-black silty clay, similar to the general refuse surrounding the structure (Fig. 43).

Structure 11

A non-ring structure, Structure 11, is situated on a low ridge crest in the front center of the bench surface. Surface indications of this feature were a pile of burned gray chinking adobes. An east-west test trench was laid out, with expectations of defining the floor area, but results were very inconclusive due to the shallow nature of the feature. More favorable returns were yielded with detailed troweling in the area of greatest adobe concentration. H.C. Greminger completed the task of clearing the floor and associated architecture.

This structure consists of a main room and a postulated antechamber, which together form a dumbbell shape. The main

Fig. 43. Interior house fill, Structure 9, Valentine Village. Fill is exposed in a north-south profile which bisects the fire basin marked by the three foot scale.

Fig. 44. Structure 11, Valentine Village. Facing east with main room in foreground and antechamber beyond. Small, upright sticks mark position of intramural post holes.

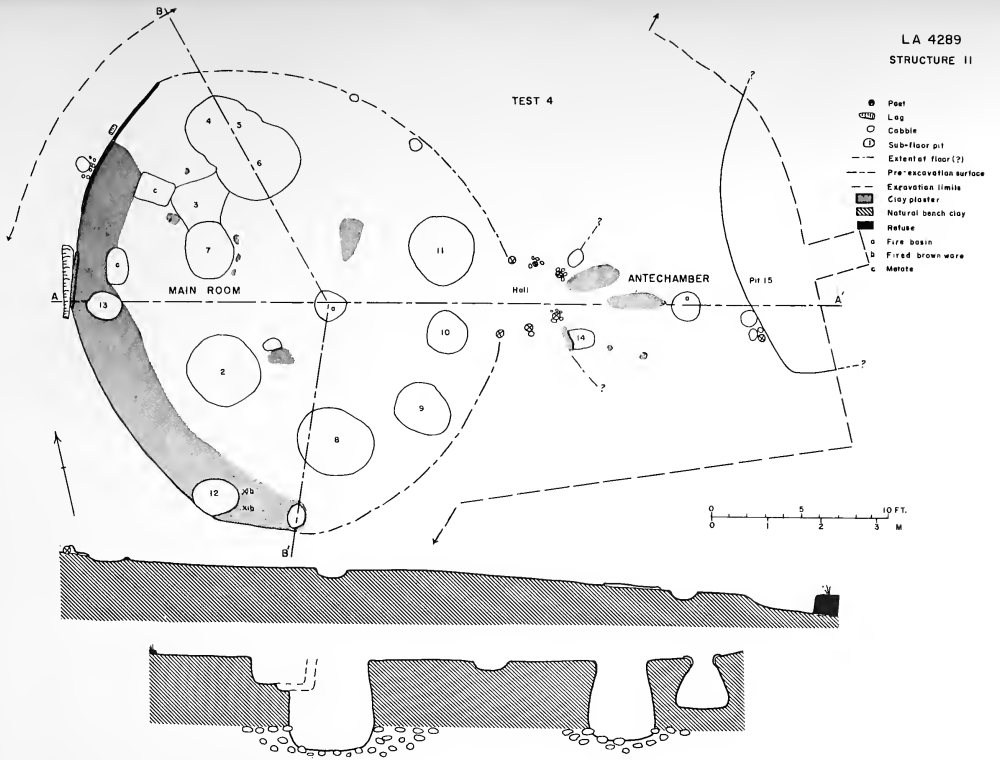


Fig. 45. Plan and profiles of Structure 11, Valentine Village.

room is oval in outline, with the long axis trending roughly north-south. Due to the lack of preserved floor plastering or surrounding basal log course a postulated antechamber has no definable shape. However, because of the similarities of this structure to Structure 10, it is thought that the antechamber was almost certainly circular. An intramural postlined hallway connects the two rooms.

The main room is an oval-shape shallow basin, with maximum depression in the approximate center. This cut into the natural bench clay is deeper on the upslope, or west side. The maximum depth is occupied by a fire basin. The antechamber was erected almost on the surface and due to its shallow depth, near-surface erosion has destroyed most of the original plastering. Most of the plastering of the main room extends in a semi-circle around the upslope side, but four small isolated patches are scattered at random in the central and north half. The plaster is composed of a smoothed layer of gray clay, some .05 to 0.1 feet in thickness. This clay is fired quite hard, probably when the house burned, and has cracked into a mosaic of small angular fragments. Four other plaster fragments occur in the antechamber, between the intramural hall and the fire basin.

One circular firebasin occurs approximately in the center of the main room, another, identical, opposite the intramural hall in the area of the antechamber, probably near the center of the postulated room. Both basins are cut into the natural bench clay; their sides are unplastered. Evidence of burning consists of a light pink to red oxidation but no concentration of cracked rock or ash were present.

Fourteen other sub-floor pits occur in Structure 11, all but one of which are in the main room. One exterior pit intersects the antechamber and is described under Miscellaneous Architectural Features. Due to their layout pattern and details of construction, all interior pits appear to be directly associated with the house.

Most pits are arranged in a circle around the main room periphery, leaving the central floor space unobstructed. One complete circular arrangement of deep, undercut pits (2, 6 - 11) occupies the area about halfway between the fire basin and the floor perimeter. Three more pits (1, 12 - 13) are against the outside of the room.

Shallow basin pits (12 - 14) consist of slight dips in the floor. They are oval in plan, and have very gently sloping unplastered sides. A metate appears to be paired with Pit 13. A container could have been set in this basin to collect ground meal and keep it clean.

Two pits (4 - 5), are straight-sided in profile and circular in plan. They intersect one another; Pit 5 further intersects adjacent Pit 6. The order of cutting could not be determined from differences in the pit fill. From the remaining portions of the pits, it is postulated that they were constructed as cylinders. No plastering or burning of the sides was in evidence.

Undercut pits (1 - 2, 6 - 11) are the most common profile type excavated. The deeper pits were dug through an upper natural bench clay stratum into an underlying deposit of gravel. Pit 1 has a fired gray plaster coating around the rim. This material is about 0.1 to 0.05 feet thick, and merges with the floor plaster. Plaster has cracked into many small, angular fragments, presenting a mosaic appearance (Fig. 46). Also, in the fill, was a charred log together with a cache of stone artifacts, consisting of a stone bowl, inverted over three two-hand manos resting on the floor. The lower walls of Pits 10 and 11 are burned brownish-black. The affected area is very thin, and contrasts with the intense oxidized burning of some plastered pits in Structure 10.

An amorphous pit (3) does not correspond to any of the designated pit forms. It has an irregular outline, further confused through intersection by Pits 6 and 7. In profile, it has nearly straight sides and a flattish bottom. Its location, with reference to a nearby metate, suggests that it may have been used as a meal cachement.

Seven post holes occur in Structure 11, six between the two rooms, and one in the area of the antechamber. All contain traces of upright, rotted posts; five are lined with small wedges of sandstone and cobble. Post holes located between the two rooms form a pattern of two converging rows of three each. Post stubs in each row pair up. Probably, this double row formed the supports for a jacal constructed hallway connecting the two rooms. The converging plan view, which forms a funnel-shape exit into the antechamber, parallels the similar intramural hallway in Structure 9. Remains of a single post occurs east of the antechamber fire basin. This detail may represent the only remaining post in the exterior hallway, or it may have been part of another feature. Evidence for associating it with Structure 11 is its apparent alignment with the intramural hall.

Preservation of charred and rotted superstructure logs is very poor, due to the shallow nature of the house. However, two log fragments were found on the northwest quarter of the main room. Each is coated, on its house interior surface, with a thick plaster of gray adobe mud merging with the plastered floor. The logs are not in channel grooves, but to the side of the shallow basin floor. Chinking adobe occurs in another part of the house; next to the antechamber end of the hall, in back of shallow Pit 14, is a short section of upright superstructure adobe, but no backing log.

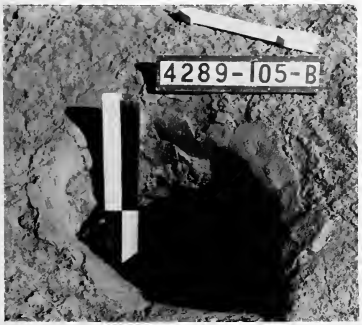


Fig. 46. Sub-floor Pit 1, Structure 11, Valentine Village. Note clay plaster lining rim of pit orifice.

Several hundred pounds of fired chinking adobes were removed from the main room of Structure 11. The large bulk suggests that an adobe covered structure collapsed directly into the house area, perhaps after a burning. The absence of interior upright supports and log fall is notable.

Inside the house was a deposit of silty clay, darkly stained by admixture with charcoal.

Miscellaneous Architectural Features

Two features, a depression and a cairn, are either incompletely excavated or aberrant to the classification of house architecture.

The first is designated Exterior Pit 15 at Structure 11 (Fig. 45). It consists of a partially exposed depression cut into the natural bench clay, filled with black refuse. In plan view, it shows as a curved outline, with one straight side; in cross-section, it has a sloping wall, leveling off to a flattish bottom. No modification of this surface is apparent. Lack of time prevented further excavation.

Due to its symmetrical outline depth, and large size, it is considered that this may be the remains of a non-ring house, but detailed proof was not obtained. Pit 15 and the poorly preserved antechamber of Structure 11 intersect one another, but the order of cutting was not determinable. Fill of this feature contained little rock, chinking adobe, logs, or other items. One brown ware sherd was found.

A pile of eleven large water-rounded quartzitic and igneous cobbles was found to the southeast of Structure 11. When viewed on the surface, this scattered accumulation resembled a cairn. Since this type of sur-

face manifestation was noted elsewhere within the Reservoir District (Dittert, et al, 1961, p. 43), it was desirable to test and determine its possible significance. A short trench, sectioning part of the rock concentration, showed that the cobbles rested on a 0.4 foot thick deposit of surface refuse, with nothing in the way of a burial or other cultural manifestation underneath them.

Exterior Pits

Broadside tests 1 and 4 in the surface refuse, as well as stripping under and around cobble ring Structures 2, 3, 6, and 9, revealed twenty-two sub-surface pits. These are similar in profile to those described as sub-floor pits, but are dealt with separately since there is no possibility that they are associated with architectural structures. Location and number designation of these features is given with reference to the test or structure in, or around, which they are located.

Two profile styles of pits are encountered: basin and undercut. Basin pits are circular to oval in plan view, with gently sloping unplastered walls; they do not show digging stick marks (Fig. 47). Red oxidized burning is present in some pits. Fill consists of black surface refuse, frequently containing quantities of charcoal and angular fractured rock. It is inferred that these pits are outside fire basins, used for cooking and to heat rock for the deep undercut fireless cooking pits.

Fig. 47. Hearth Pit 1, Test 1, Valentine Village. Hearthstones removed from burned basin have been piled on use surface behind pit.

Undercut pits are circular in plan, with out-flaring sides, creating a maximum diameter near the pit bottom. The depth of these pits often carries them through a natural clay layer into a cobble stratum, with cobbles lining the lower pit walls and bottom. Walls of these pits also are unplastered, and lack digging stick marks. However, occasionally they show color evidence of burning, varying from a brownish-black to a bright orange. Fill generally is a reddish-brown clay, containing chunks of charcoal, cracked river cobbles, and, infrequently, burned sandstone fragments. Burned pits probably were used as fireless cookers, a cooking technique described under Exterior Pits at the Power Pole Site. Unburned pits may have been employed either as storage containers, or as fireless cookers.

Surface Refuse

A very large sheet of surface refuse surrounds and blankets the area of the prehistoric residences. In a north-south line it extends from the vicinity of Structure 5 to that of Structure 1, a distance of approximately 560 feet. From east to west, it stretches from the vicinity of Structure 2 to that of Structure 3; a distance of about 210 feet. Within this maximum spread, there are four major concentrations of refuse; three assigned to the Los Pinos Phase, and one to the Gobernador Phase Navajo. Los Pinos Phase refuse is more prominent immediately around Structures 1-6 and 10-11. Navajo Period trash generally is confined within the area of Structure 7 and portions of Structure 10, as well as Trash Tests 2 and 3. Some trash occurs also around Structure 2. This is also the area of greatest contamination of earlier structures by intrusive Navajo ceramics.

All prehistoric refuse shows on the surface as a dark gray silty clay with a scattering of heat fractured cobbles, burn-

ed adobe fragments, some tool fragments, and waste tool manufacture debris. Also, surface indications of the various structures described previously were, more or less, displayed through the surface mantle. Refuse of the Navajo component also includes a quantity of ceramic sherds.

The sub-surface character of these deposits was examined by rectangular broadside stripping at Tests 1-4 and by two long test trenches. Detailed examination of the resulting profile cuts and material excavated indicates that the maximum depth of refuse varies between 0.4 and 0.6 feet. In profile, it shows no structure, and the only apparent color change is near the base, where it is mixed with the underlying reddish bench clay. Lying directly on the bench, it follows the dips and undulations of that old land surface. It is entirely similar in character to the interior fill of many of the surface structures previously described, and probably is a mixture of discarded and decayed organic refuse with the silty clay of the site bench. Cracked rock, tools, and some waste lithic debris included within the refuse deposit probably are the residue of hearth cooking and tool manufacture. The dark refuse color is indicative of living activities, such as fire building, food consumption, decay of vegetal materials, and other waste. The widespread extent and quantity of refuse verifies the architectural evidence of a sedentary occupation as opposed to seasonal re-occupation or temporary camping. It is inferred that settlement was intense and by a fairly sizeable group.

CHAPTER III

ARTIFACTS AND NON-ARTIFACTS

PORTABLE ARTIFACTUAL REMAINS

The portable survey collection obtained from the Reservoir District, was treated from the point of view of form rather than type, except in the case of ceramics, because it was felt that re-use of tools, occurrence of trade items, and surface mixture, all adversely affect the correct association of a site artifact assemblage (Dittert, et al, 1961, p. 135). However, the type concept will be employed on material culture collections obtained from this and future excavations where the validity of association is greater. In this section, provisional artifact types will be established. However, it must be kept in mind that these provisional types may or may not be verified as the size of the sample is increased through future excavation.

Following are type descriptions and use interpretations for tools collected during excavation. These tools are grouped on the basis of materials and form similarities, without regard to location within the sites. Following this descriptive data is an attempt to establish artifact assemblages: one for the Los Pinos Phase and one for the Navajo trash component on Valentine Village.

Description of Portable Clay Artifacts

Descriptions of ceramic technology have been eliminated, except in those cases where prior studies have not been made. Information concerning the intrusive Pueblo and Navajo Period ceramics may be obtained from Dittert, et al (1961, pp. 135-156). Only the ceramics which are felt to occur in primary association with the Los Pinos Phase are described in detail. These categories include the unfired gray ware, probably of local manufacture; and fired brown ware, probably introduced through outside trade. Table I gives the location of all clay artifacts.

UNFIRED GRAY WARE (5)

This form of pseudo-pottery has not previously been described for the Reservoir District. It is referred to as pseudo-pottery because it was not fired intentionally. It is very similar to unfired pottery, described from other Basket Maker II and III sites, except that it lacks basketry impressions. Within the excavated Los Pinos Phase sites, it is limited to five sherds, restricted entirely to non-ring Structure 10 at Valentine Village. Due to the scarcity of specimens, no type name is offered at this time. This more probably results from early experiments with clay, and parallels the use of clay for other artifacts. Some of this modeling and experimentation with plastic clay may have been an attempt to copy fired brown ware vessels.

Construction: coiling and scraping; the individual coils are probably super-imposed rings of clay, rather than a spiral. Core Colors: four of the sherds exhibit a light gray (N 5/0) to dark gray (5 Y 5/1) to black (5 Y1/1) color. A lug presents a more oxidized yellowish brown (10 YR 5/4) paste color (Munsell, 1954). No definite carbon streak is present. Firing: unlike true pottery, these sherds have not been fired intentionally. Their hardness, preservation, and, in part, their color, is due to secondary firing, probably during a house burning, and is no more prominent than that found in various types of construction clays found within the same house. Except in the case of the lug, the house firing must have

TABLE 1

PROVENIENCE OF CLAY ARTIFACTS

CLAY ARTIFACTS / PROVENIENCE	LOS PINOS PHASE		PUEBLO PERIOD				NAVAJO PERIOD							LOS PINOS PHASE				
	Unfired Gray Ware	Fired Brown Ware	Rosa Brown	Rosa Gray	Chapin Gray	Puerco B/W: Gallup variety	Dinetah Utility	Gobernador Polychrome	Gobernador-Navajo Transitional Polychrome	Zuni-Acoma Glaze Polychrome	Ashiwi Polychrome	Hawikuh Glaze Polychrome	Rio Grande Glazes E and F	Unidentified Glaze	Lids	Spout and Plug	Floor Basins	Mud Domes	Sculptured Chinking Adobe	TOTAL
LA 4257																				
Houses																				
Structure 1																				
Pit 2																		1		1
Pit 6			1																	1
Refuse																				
Surface				1		1														2
LA 4289																				
Houses																				
Structure 2																				
Fill			1				10	1	1											13
Structure 9																				
Pit 10																		1		1
Structure 10																				
Main Room																				
Floor								1												1
Pit 1							1													1
Pit 2							2													2
Pit 4																		1		1
Pit 5																		1		1
Pit 14							1													1
Fill	1						3												1	5
Antechamber																				
Floor	3														1	1	1			6
Bin 15																		1		1
Fill	1																1			2
Structure 11																				
Main Room																				
Floor	2																			2
Pit 3															1					1
Pit 7	1																			1

TABLE 1 - continued

CLAY ARTIFACTS / PROVENIENCE	LOS PINOS PHASE	PUEBLO PERIOD					NAVAJO PERIOD										LOS PINOS PHASE					TOTAL
	Unfired Gray Ware Fired Brown Ware	Rosa Brown	Rosa Gray	Chapin Gray	Puerco B/W: Gallup variety	Unidentified	Dinetah Utility	Gobernador Polychrome	Gobernador-Navajo Transitional Polychrome	Zuni-Acoma Glaze Polychrome	Ashiwi Polychrome	Hawikuh Glaze Polychrome	Rio Grande Glazes E and F	Unidentified Glaze			Lids	Spout and Plug	Floor Basins	Mud Domes	Sculptured Chinking Adobe	
Structure 11																						
Main Room																						
Pit 12	1																					1
Back Dirt (Pits 1, 2, & 7?)	12																					12
Fill	1																					1
Underlying Pits																						
Structure 6																						
Pit 2	1																					1
Exterior Pits																						
Structure 2																						
Pit 6	1																					1
Pit 8							8															8
Structure 11																						
Pit 15	1																					1
Refuse																						
Surface																						
Navajo refuse					1		7	11	1				2									22
Structure 2							36	7		1				1								45
Test 2							4	1														5
Test 2							17	2				2										21
Test 3							73	11	2			2										88
TOTAL	5	20	1	1	1	1	162	34	4	1	4	2	1				2	1	2	5	1	249

been in a reducing atmosphere, perhaps as a result of a collapsed superstructure, which prevented the burning out of organic matter in the clay, producing a gray-to-black surface color and paste. Temper: small open pockets and tunnels running through the sherd walls imply that the paste was originally vegetable tempered, probably with grass; subsequent firing would burn out this tempering material. Some sherds show rolled quartz sand, both in the vessel wall and on the surface. However, this material easily may have been included in the clay deposit, and not represent an intentional additive. Hardness of Paste: 2.5-5.0. Surface: smoothed, probably with fingers; two sherds show exterior brushing. Color of surface varies from brown to gray. Tones of brown include a dark gray-brown (10 YR 4/2) and a very dark brown (10 YR 2/2). Tones of gray vary from a light gray (10 YR 6/1) through a gray (5Y 5/1) to a black (5Y 1/1). An apparent polish is present on two sherds. This effect may be due

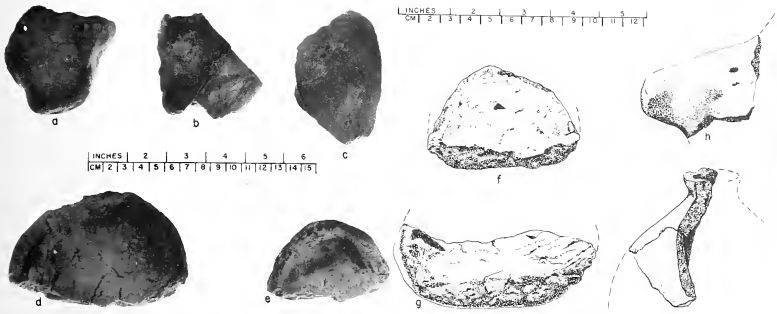


Fig. 48. Unfired gray ware. Photographs showing texture: a, lug; b-c, vessel walls; d-e, vessel bases. Drawing showing shape: f-g, oblique view of vessel bases; h, side view of lug; i, jar mouth.

to organic matter in the clay; it is not present in the remaining three sherds, which, closer to the surface were more subject to weathering. No slip or other type of painted surface-finishing is present. Thickness: vessel bases are 0.6 - 0.7 inches (1.5 - 1.7 mm.) and walls are 0.5 inches (1.12 mm.). Forms: one jar, two vessel bases, one lug, and one indeterminate. The jar has a very small mouth, tiny straight rim (IIIC3, shape, Colton, 1937, p. 10), and an outflaring, globular body. The two vessel bases might belong either to jars or bowls. They were formed by flattening a chunk of clay into a circular disc, and the first coil of the wall was laid around the perimeter. The lug is well-formed, mostly solid. A small cup-shaped depression, in the face of the line of attachment with the vessel, indicates that the vessel interior extended very slightly into the lug body. Two perforated holes angle from the exterior of the lug into this interior hollow: circular-to-oval in shape, they appear to have been formed around a stick or grass stem. This lug is similar to many from Rosa Phase jars (Fig. 48).

FIRED BROWN WARE (20)

A small number of fired brown ware sherds appear to be in primary association with the Los Pinos Phase. However, due to dissimilarities with the gray ware described above, it is felt that these are fragments of vessels traded into the Pine River Section, and not made locally. They cannot, however, be related specifically to a described ceramic type or geographic locality. They are representative of a developed ceramic craft, more advanced, technologically, than the unfired gray ware previously described.

Construction: coiling; finishing was probably performed by paddle and anvil (?) and scraping techniques. Use of the paddle and anvil is indicated by interior dimpling on large sherds. Core Color: light red (2.5 YR 6/6), to reddish brown (5 YR 6/6), to very dark gray (7.5 YR 3/0), to black (5 YN 2/1). Occasional carbon streaks are present, sometimes in the center of the wall, sometimes intensifying toward either surface. Firing: intentional firing in an oxidizing atmosphere. Temper: considerable amounts of rolled sand, most of which is quartz. Hardness of Paste: 3.0 - 5.5. Surface: smoothed, probably by scraping. Polishing marks and surface gloss are apparent on the exterior of many sherds, occasionally on the interior. Color of the surface varies from a light reddish-brown (5 YR 6/4 - 6/3), through a reddish-brown (5 YR 4/4 - 5/4), to black (2.5 YN 2/0). The surface of the light, reddish-brown sherds also shows dark fire clouds; many of the black sherds may be from these discolored portions of the vessel. Thickness: vessel walls are 0.3 - 0.5 inches (7 - 13 mm. thick). Forms: wall sherds are too fragmentary to indicate more than that jars and bowls are present; two rims indicate bowl

Fig. 49. Fired brown ware.

and seed jar forms. Rims: one bowl rim has an IA 2 shape; a seed jar rim has an IA 4 shape (Fig. 49).

Other Uses of Clay

This category includes many stationary objects which, technically, should be under an architectural heading (Table 1). Also some of the portable items, such as plugs and lids, are, in fact, integral parts of stationary architecture. However, all of these clay construction artifacts deserve full and complete treatment, best undertaken in relation to portable clay artifacts.

These pieces are all from the same type of light gray clay, and originally were only sun dried. Subsequently, probably due to the house burning, this clay was partially fired, causing its preservation. Descriptions presented here should be compared with the individually described mud dome walls found in Structure 1, Power Pole Site, and Structures 9 and 10, Valentine Village. All of this construction indicates a pattern of experimentation with a new clay medium.

LIDS (2)

An adobe lid is made of a thin sheet of gray clay, oval in plan view and concave in cross-section. A convex face is finger smoothed, with just a touch of polish. The reverse concave face is unfinished and shows many linear indentations, as if the specimen had been modeled on a mat of vegetal material, such as grass or juniper bark. At least one impression of a corn husk is present. Around the edge of this face is a beveled groove, smooth from contact with a nether rim surface (Fig. 50, b). The general appearance of this piece suggests a lid; when repaired and set on the mud dome opening of Bin 15, in Structure 10, it fitted exactly. From the characteristics of the lid, it appears that the bin was filled with storage items, perhaps corn, and a layer of vegetal matting placed over its contents. Plastic mud was then poured over the matting, so as to overlap the rim of the bin. This overlap produced the circular beveled groove. Clay was finger smoothed on its exterior convex surface, and left to dry. The resulting lid neatly sealed the bin from scavenging rodents.

A second fragmentary clay lid is well preserved, and its various impressions provide considerable information. A gray clay was used, probably vegetable tempered, from the tunnels and air pockets present. The top is flat, the sides beveled to the top. These surfaces were finished by smoothing

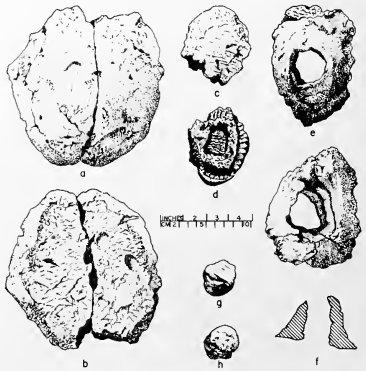


Fig. 50. Lids and spout plug. Lids: a, top of lid for mud dome 15, Structure 10, LA 4289; b, reverse of same lid; c, top of basket lid; d, reverse of same lid. Spout and plug: e, top of spout; f, bottom of spout with cross-section; g, top of plug; h, reverse of plug.

with a corn cob, or other material, which left various parallel striations and indentations. The underside has corn cob impressions, one of which is very prominent. Around the perimeter of the lid is a good rim impression of a coil basket.

In part, the clay extends below the top of this rim, giving the impression that a daub of mud was placed in the constricted neck of a basket, producing a combination lid and plug. Why corn cobs should be stored is not apparent, unless cobs merely protected the worthwhile contents filling the main portion of the basket (Fig. 50, c).

SPOUT AND PLUG (1)

A spout is constructed of three concentric coils of gray clay, forming a hollow cone The constricted portion of the cone is truncated, and provides an opening. The base of the spout is flattish; half of it shows impressions of the cone backing up against a log. The exterior is brushed to smooth the surface. The appearance of this specimen is most unusual, suggesting that it served as a pouring spout for a container. However, the basal log impression make it seem as if the spout was attached to a log, perhaps part of the house superstructure, as a permanent fixture, until broken free and tossed on the antechamber floor (Fig. 50, e).

At the time the spout was found it contained a clay plug inserted within the constricted opening as a stopper. This plug, a thick disc, was made by pressing three or four thin, disc-shaped chunks of mud together. It has one finished, grass brushed surface, which faces out of the spout. The interior face of the disc is more rounded and shows six small indentations, probably made with a small, round-ended stick. The plug, obviously made as a stopper for the spout, can only be removed and re-inserted from the inside; a factor which would make the nature of the original container all the more curious (Fig. 50, g).

FLOOR BASINS (2)

Two clay specimens are semi-basin-shaped containers. Each has a flat bottom and a curving, vertical wall probably modeled from a single chunk of clay. The interior bottom shows finger impressions, while the wall is smoothed. One specimen is slightly polished on the exterior, and the other shows combing, probably as a result of smoothing. The ends of one specimen have vertical concave casts of wood, as if the semi-basin had been abutted against two uprights posts. The roughened bottom probably sat directly on the floor (Fig. 51, a).

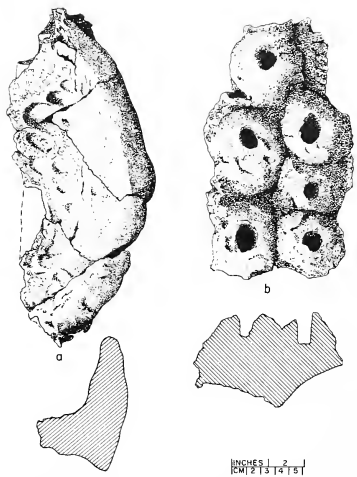


Fig. 51. Floor basin and sculptured chinking adobe. a, floor basin; b, sculptured chinking adobe.

Within three or four feet of this specimen are two sets of upright posts, which form the antechamber end of the intramural hallway. It is possible that this clay basin was fastened as a container against the antechamber end of the Structure 10 hall. With destruction of the house, it was broken free and smashed some feet away, on the floor. The other specimen has a smooth bottom, and appears to have been set on a log. This basin does not show a vertical log impression on the remaining end.

SCULPTURED CHINKING ADOBE (1)

This specimen, once an integral part of a house structure, is a typical fragment

of fired, clay chinking which coated a log superstructure; roughly rectangular in shape, it has two concave log impressions on its underside.

However, the exterior face is most unusual; it has been modeled into six hemispheres, each containing a centrally placed hole. The hemispheres are arranged in two rows; two hemispheres are opposite one another; the other four are staggered. A break in one row makes it appear that there may have been at least one more. Whether this pattern was extended is not apparent (Fig. 51, b).

Other examples of decorated construction adobes are scant. Two specimens recovered show incising; one has a line of finger punched holes, and a second is covered with parallel lines of finger nail impressions. This situation contrasts with that found by Morris and Burgh (1954, p. 52) for the Durango District. Construction mud in this latter area was commonly decorated with geometric, and even life, forms.

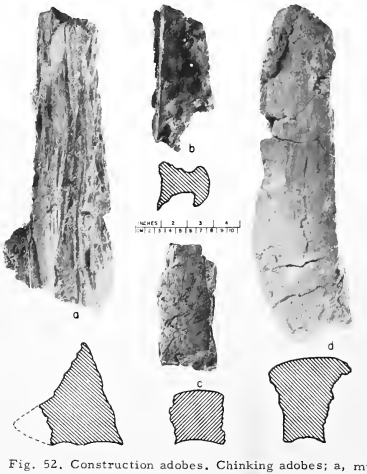


Fig. 52. Construction adobes. Chinking adobes; a, mud shows horizontal log impressions on the left and finger finished exterior surface to the right; b, finger impressions in mud tamped between adjacent construction logs. Mud dome coils; c, fragment showing vegetable tempered impressions; d, complete brick showing end impressions indicating juncture with adjacent bricks. Note bowed curvature of plan view.

CONSTRUCTION ADOBE

Other uses of clay in construction have been presented in the sections on Subfloor Pits and Superstructure in Structure 1, the Power Pole Site, and Structures 9 and 10, Valentine Village: (see details of mud dome walls and chinking adobe). Figure 52 illustrates the different types of fired construction mud which were recovered. The mud block designated as d, in that figure, is unusual in that it had finished ends which abutted adjacent blocks, making a true modeled brick. Only a few duplicate modeled bricks have been found, and they contrast with many broken fragments of circular coils. All of the extant mud domes appeared to be composed of coils, rather than smaller blocks; mud dome Bin 15 from Structure 10, Valentine Village, which was completely disassembled for cleaning, definitely was constructed in this fashion.

Description of Stone Tools

Stone tools are the most common type of portable artifact recovered through excavation, undoubtedly an accident of preservation, not reflecting a true ratio in relation to the other more perishable implements. Analysis of this tool category largely follows that of the survey collection (Dittert, et al, 1961, pp. 160 - 193). Location of stone tool types is given in Table 2.

PROJECTILE POINTS (19)

Point groupings are established following criteria presented in the Reservoir Survey Report (ibid., p. 160). The number of specific categories indicates a surprising amount of mixture from earlier and later cultures, some of which can be accounted for by surface finds. Many specimens are fragmentary, and are not included in the sub-categories described below.

Triangular (3)

Projectile points which have a tri-

TABLE 2

PROVENIENCE OF STONE TOOLS

PROVENIENCE / TOOLS	POINTS: Triangular	POINTS: Stemmed, Indented Base	POINTS: Side Notch, Broad Spur	POINTS: Corner Notch, Exp. Stem	POINTS: Straight Stem	POINTS: Miscellaneous	BLADES: Ovate	BLADES: Pinnate	BLADES: Miscellaneous	KNIVES: Chipped	KNIVES: Polished Edge	SCRAPERS: Hollow Edge	SCRAPERS: Side	SCRAPERS: End	SCRAPERS: Ground	GRAVERS	CHOPPERS	HAMMERS	EDGE ABRADER	CORE	MANOS: One-hand	MANOS: Two-hand	MANOS: Miscellaneous	METATES: Trough	METATES: Shallow Basin	METATES: Deep Basin	METATES: Miscellaneous	POUNDERS	BOWLS	POLISHERS	SHAFT TOOLS	SLAB COVERS	TOTAL
LA 4257																																	
Houses																																	
Structure 1																																	
Paving																							3										3
Floor					1		1											3			1		2		1								9
Pit 2																	1	1			1												3
Pit 3										2			1																				3
Pit 4																					1												1
Pit 6												1						1															2
Pit 7													1																				1
Fill	1				1					1		2																					5
Structure 2																																	
Floor																									1								1
Structure 3																																	
Floor																					1												1
Exterior Pits																																	
Test 2																																	
Pit 1												1		1		1																	3
Refuse																																	
Surface		2		1						1						1	8	1		3		1				3							21
Test 1																	3			2													5
Test 2							1							1			6	3															11
LA 4289																																	
Houses																																	
Structure 1																																	
Floor				1																													1
Fill	1																				1												2
Structure 2																																	
Floor		1																1															2
Pit 1																			1	1	1												3
Pit 5																		1				1											2

TABLE 2 - continued

PROVENIENCE \ TOOLS	POINTS: Triangular	POINTS: Stemmed, Indented Base	POINTS: Side Notch, Broad Spur	POINTS: Corner Notch, Exp. Stem	POINTS: Straight Stem	POINTS: Miscellaneous	BLADES: Ovate	BLADES: Pinnate	BLADES: Miscellaneous	KNIVES: Chipped	KNIVES: Polished Edge	SCRAPERS: Hollow Edge	SCRAPERS: Side	SCRAPERS: End	SCRAPERS: Ground	GRAVERS	CHOPPERS	HAMMERS	EDGE ABRADER	CORE	MANOS: One-hand	MANOS: Two-hand	MANOS: Miscellaneous	METATES: Trough	METATES: Shallow Basin	METATES: Deep Basin	METATES: Miscellaneous	POUNDERS	BOWLS	POLISHERS	SHAFT TOOLS	SLAB COVERS	TOTAL
Structure 2																																	
Pit 7																	1				1												2
Fill						1										1	2				2							1				1		8
Structure 3																																	
Paving																					1		1										2
Floor			1							1																							2
Pit 1																									1								1
Pit 4																									3							1	4
Pit 11												1													1								2
Fill					1					1									1		3		1										7
Structure 4																																	
Floor																							1										1
Pit 1																					1												1
Structure 6																																	
Paving																					1												1
Fill																					1	1											2
Structure 8																																	
Fill																	1				1												2
Structure 9																																	
Main Room																																	
Paving																					1												1
Floor															1						4	3			1								9
Pit 6																					1												1
Pit 7																										1							1
Fill																	2	2			1	3				3				4			15
Structure 10																																	
Main Room																																	
Floor												1						1			1											2	5
Pit 1																					1					1							2
Pit 8																					1												1
Pit 10																	1	2	1	1	3	3		1				1	3				16
Pit 11																	1					2						1					4
Pit 12																										2							2
Fill												1		3	1			4				2		3				1		1			16
Antechamber																																	
Floor																	1					1	1	1	2	1							7
Fill							1					1				1				1		2				2								8

TABLE 2 - continued

PROVENIENCE \ TOOLS	POINTS: Triangular	Stemmed, Indented Base	Side Notch, Broad Spur	Corner Notch, Exp. Stem	Straight Stem	Miscellaneous	BLADES: Ovate	Pinnate	Miscellaneous	KNIVES: Chipped	Polished Edge	SCRAPERS: Hollow Edge	Side	End	Ground	GRAVERS	CHOPPERS	HAMMERS	EDGE ABRADER	CORE	MANOS: One-hand	Two-hand	Miscellaneous	METATES: Trough	Shallow Basin	Deep Basin	Miscellaneous	POUNDERS	BOWLS	POLISHERS	SHAFT TOOLS	SLAB COVERS	TOTAL
Structure 11																																	
Main Room																																	
Floor																					3			2		1							3
Pit 1																												1					4
Pit 6																1				1													2
Pit 7																																1	1
Pit 8						2																		1									3
Pit 10																										1							1
Fill																										1							1
Underlying Pits																																	
Structure 6																																	
Pit 2																								1									1
Exterior Pits																																	
Structure 2																																	
Pit 2								1																									1
Pit 6																1																	1
Test 1																																	
Pit 1																					1												1
Refuse																																	
Surface																																	
Structure 2													1													1							2
Structure 10																					1												1
General	2	1	1			2		1			1					1	2		2		3			1						3			20
Test 1																											1						1
Test 2												1		1			1																	3
TOTAL	3	1	2	4	1	8	1	2	3	6	1	1	8	6	5	5	31	23	3	9	17	39	2	17	2	4	22	3	3	8	3	5	248

Fig. 53. List of rare stone artifacts by provenience.

TOOL TYPE	NUMBER OF SPECIMENS	PROVENIENCE
Saw	1	Surface refuse, LA 4257
Drill	1	Surface refuse, LA 4289
Punch	1	Floor, Structure 1, LA 4289
Eccentric	1	Trench exterior to Structure 2, LA 4289
Discs	2	Fill, hall, Structure 11, LA 4289
	1	Surface refuse, LA 4289
Grinding	2	Pit 1, Test 2, LA 4257
	1	Surface refuse, LA 4289
Paint grinders	2	Pit 10, Main Room, Structure 10, LA 4289
Paint palette	1	Pit 4, Structure 3, LA 4289
Perforated pebble	1	Pit 11, Main Room, Structure 10, LA 4289
Pecked circle	1	Fill, Main Room, Structure 10, LA 4289
Gilsonite	1	Fill, Structure 2, LA 4289
	1	Surface, Structure 2, LA 4289
Limonite	1	Fill, Structure 6, LA 4289
	1	Cobble paving, Structure 1, LA 4257

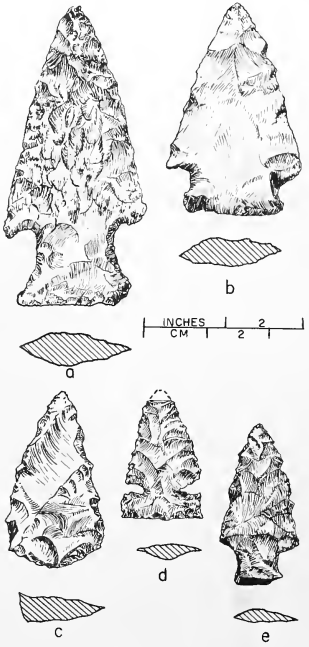


Fig. 54. Projectile points. a-b, corner notch, expanding stem; c, triangular; d, side notch, broad spur; e, straight stem.

angular-shaped blade and lack a stem. Sides of the blades may be either straight or convex; the base may be either shape, as well as concave. Shaping was accomplished by pressure chipping along both sides and base. Size range: length, 1.0 - 1.4 inches; width, 0.5 - 0.6 inches; thickness, 0.1 - 0.2 inches; weight, 20.1 - 21.6 ounces (Fig. 54, c).

Stemmed, Indented Base (1)

The one example is broken down its central axis and has a thick blade in relation to its postulated width. Side notching produced a rounded shoulder and a pronounced spur. The remaining spur was ground highly smooth with a rotary motion, which completely removed evidence of chipping. The base is notched, but not noticeably ground. No size figures are obtainable.

Side Notch, Broad Spur (2)

Examples are fashioned from a triangular blade, with very slightly convex sides and a straight or concave base. A broad spur was produced by side notching at least one-fifth the way up the blade from the base: the resultant stem is wider than the blade. A third notch was made in the middle of the base of one point. Manufacture was by pressure chipping. Size of one specimen: length, 0.8 inches; width, 0.5 inches; thickness, 0.1 inches; weight, 4.63 grains (Fig. 54, d).

Corner Notch, Expanding Stem (4)

An expanding stem produced by corner notching a triangular blade. Sides and bases of these blades are either straight or

convex. Tangs and spurs, produced by the notching, are sharp and, frequently obliquely projecting. The stem is narrower than the blade. One specimen shows some basal grinding. Size range: length, 1.3 - 1.9 inches; width, 0.8 - 0.9 inches; thickness, 0.1 - 0.3 inches; weight, 41.7 - 84.9 grains (Fig. 54, a-b).

Straight Stem (1)

Specimen shows a relatively straight, parallel-sided, stem. It is not apparent whether the notching which produced this characteristic was from the side or corners of the original triangular blade The base is the unmodified surface of the original striking platform. Size: length, 1.0 inches; width, 0.5 inches; thickness, 0.1 inches; weight, 9.26 grains (Fig. 54, e).

BLADES (6)

The blades, unstemmed and leaf-shaped, were manufactured from thin flakes and roughed out by percussion flaking. Finer, bifacial chipping thinned the edges for cutting. Evidence of use consists of edge battering. Shapes are similar to those described from the Reservoir District survey collection, and included ovate (1 example), pinnate (2 examples), a long tapering triangular blade fragment with straight converging sides, and other miscellaneous fragments (Dittert, et al, 1961, pp. 172-174). Size range: length, 1.0 inches; width, 0.7 - 1.2 inches; thickness, 0.2 - 0.4 inches; cutting angle, 30 - 55 degrees (Fig. 55).

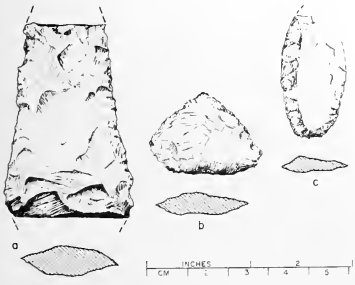


Fig. 55. Blades. a, triangular; b, pinnate; c, ovate.

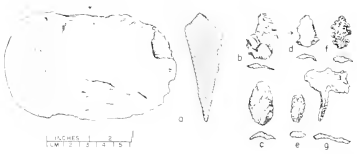


Fig. 56. Knives, saw, drill, eccentric, and punch. Knives: a, polished edge; b, utilized flake; c, intentionally chipped flake; d, saw; e, drill; f, eccentric; g, punch. Use area indicated by arrow where not apparent.

KNIVES (7)

Flake knives are utilized thin and thick flakes with no intentional shaping or notching for hafting. Cutting edges are straight, convex, or concave, and, except for one instance, all of the bifacial edge pressure chips are due to use. The flake faces do not show pressure chipping scars. The bifacial chipping indicates a cutting edge, but few tools evince sustained use. Size range: length, 0.8 - 3.2 inches; width, 0.5 - 2.3 inches; thickness, 0.2 - 0.8 inches; weight, 20.1 grains - 2.2 ounces; edge angle, 25 - 95 degrees (Fig. 56, b-c).

In addition to these chipped flakes, one knife shows a slightly polished edge made from a rounded rectangular flake, modified by unifacial edge flaking to thin the cutting angle. Along the side, the flaked edge shows a polish, but no striations are in evidence. This probably indicates use in cutting relatively non-abrasive material - possibly skinning and butchering animals. Small "wing" flakes on one end of the tool indicate additional use as a chopper. Size: length, 4.0 inches; width, 2.6 inches; thickness, 0.9 inches; weight, 7.1 ounces; chopping angle, 58 degrees; ground edge, 51 degrees (Fig. 56, a).

SAW (1)

A saw fashioned from a thin flake by pressure notching two notches into the thin edge of an irregular flake. It probably was

used in cutting plant materials. Size: length, 0.7 inches; width, 0.5 inches; thickness, 0.1 inches; weight, 6.2 grains (Fig. 56, d).

DRILL (1)

A single plain shaft, tear drop shaped drill, is completely pressure chipped bifacially to provide edge thinning, with a thick body, relative to width. The tip is missing, but the remaining shaft edges are ground, indicating rotary drilling. Basal thinning suggests that this point was hafted. Size: length, 0.7 inches; width, 0.4 inches; thickness, 0.2 inches (Fig. 56, e).

PUNCH (1)

One chipped punch is identical in shape to flanged drills described in the survey collection (Dittert, et al, 1961, p. 176). It was fashioned by bifacial chipping a thin, irregularly shaped, flake. A thin, curved, tapering projection takes advantage of a spine to form the shaft. The remainder of the flake consists of a large flange, partially modified along one edge. No ground wear is present on the shaft's tip and edges. This suggests that either a drill had been manufactured, but not used, or else used as a punch. Size: length, total, 1.3 inches; shaft, 0.7 inches; width, flange, 1.1 inches; shaft, 0.2 inches; thickness, flange, 0.2 inches; shaft, 0.1 inches (Fig. 56, g).

ECCENTRIC (1)

A small, serrated, oval flake. Complete bifacial chipping produced a symmetrical object with thin edges and a proportionately thicker body. The edges are deeply notched, giving a toothed effect. A pair of the deepest notches are on opposite sides, dividing the oval into symmetrical halves. Eight additional, shallower notches are distributed equally in opposing sets along the sides. May have been used as a pendant. Size: length, 0.7 inches; width, 0.4 inches; thickness, 0.1 inches (Fig. 56, f).

DISCS (2)

Discs of stone consist of circular shaped flakes with flat sides, shaped by bifacial edge flaking. A minimum amount of smooth grinding was performed on the circular edge, no more that would be expected from intentional edge dulling. They may have been used for cutting and scraping. These discs are very similar to those described in the San Pedro Stage of the Cochise Culture of southeastern Arizona (Sayles and Antevs, 1941, Plate 16, e). They may represent a diagnostic of late Archaic cultures, and their persistence, therefore, into the Los Pinos Phase is not unexpected. Size range: diameter, 1.9 inches; thickness, 0.3 - 0.5 inches (Fig. 57, e-f).

SCRAPERS (20)

Flake tools with one or more steeply chipped, unifacial edges. Characteristics of this grouping follow those described by Dittert, et al, (1961, p. 178). Almost all of the pressure-chipped examples described here are fashioned from quartzite and fine grain silicates, which fracture conchoidally. However, many coarser grained basalt tools, described as chopper-hammers, may also have been used in scraping, but the pressure-sheared chips necessary to demonstrate this activity are not in evidence. This may partly explain the apparent low incidence of chipped tools compared with heavy flake tools.

Hollow Edge (1)

This specimen was made from a small flake with one thin, slightly concave edge. Bifacial chipping along this edge gives a curved scraping edge. Size: length, 1.23 inches; width, 0.9 inches; thickness, 0.4 inches; weight, 100.3 grains; scraping angle, 70 degrees (Fig. 57, b).

Side Scrapers (8)

A variety of thin and thick flake shapes were employed in fashioning these tools. The common characteristic of the scrapers is irregular outline, usually elongate along one axis. The worked edge parallels this long axis, and consists of unifacial edge

chipping, most of which is due to use rather than prepared trimming. The majority of specimens show unifacial use modification along one restricted side of the flake, and on only one face; only one specimen shows chipping from both faces, along different portions of the perimeter. Another specimen shows slight smooth grinding over the chipped edge, perhaps caused by working hides. Most tools were used in working wood and other vegetal material. Size range: length, 0.6 - 2.5 inches; width, 0.5 - 1.8 inches; thickness, 0.1 - 0.8 inches; weight, 9.3 grains - 2.0 ounces; scraping angle, 30 - 70 degrees (Fig. 57, c).

End Scrapers (6)

End scrapers are identical to the side scrapers, except that the use edge is more nearly perpendicular to the long axis of the elongate flake. This is the characteristic by which they are segregated, but overlapping examples are common. Size range: length, 0.8 - 2.2 inches; width, 0.6 - 2.2 inches; thickness, 0.1 - 0.7 inches; weight, 6.2 grains 2.0 ounces; scraping angle, 30 - 90 degrees (Fig. 57, d).

Ground Scrapers (5)

These were fashioned from edge flaked, water smoothed cobbles, or large primary flakes driven off such cobbles. The resultant tool is identical in shape to the chopper-hammers; differentiation is possible only on the basis of the edge use wear. This consists of a rounded to slightly flattened ground edge along part of the flaked edge. Grinding has produced an edge which shows a polish, and linear striations which run at right angles to the flaked edge. It is the direction of these incised striation that suggests that these tools were used as side scrapers, probably on some pliable material such as hides. One tool shows additional use: battering as a hammer and rubbing as a face abrader. Size range: length, tool, 2.4 - 4.7 inches; ground edge, 1.6 - 4.0 inches; width, tool, 2.3 - 3.3 inches; ground

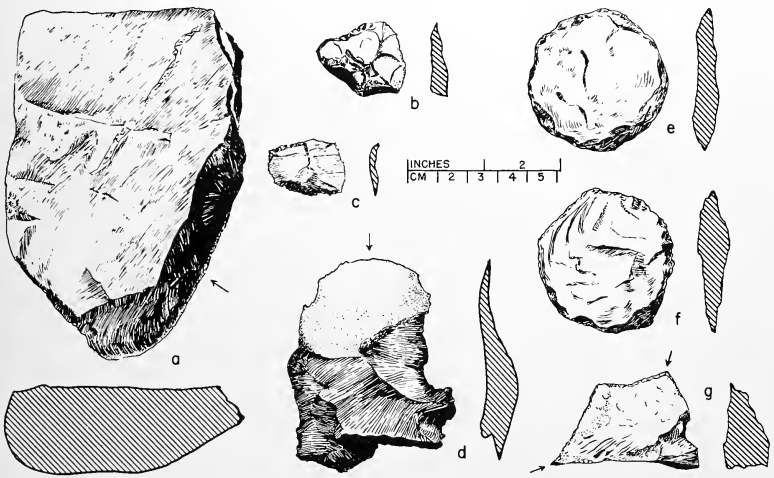


Fig. 57. Scrapers, discs, and graver. Scrapers: a, ground edge; b, hollow edge; c, side; d, end; e-f, discs; g, graver. Use area indicated by arrow where not apparent.

edge, 0.04 - 0.05 inches; thickness, tool, 1.2 - 2.0 inches; weight, 9.3 - 21.2 ounces; flaked edge, 65 - 78 degrees; worn angle, 110 degrees (Fig. 57, a).

GRAVERS (5)

Fashioned from irregular thin-to thick flakes which exhibit sharp projections suitable for use in incising. Faces of the flake have not been modified, but some points show unifacial trimming along the edges forming the projection. One or more sheer fractures are seen running up the crest of the graver projection. The point was formed intentionally by chipping on either side of the area set aside for the projection. One specimen is quite distinct from the utilized flake group. It was completely chipped bifacially, to form a tear-drop shape which resembles the outline of the plain shaft drill. However, its edges do not show grinding. Its point appears to have been used in incising. Size range: length, 1.1 - 1.9 inches; width, 0.5 - 1.4 inches; thickness, 0.1 - 0.6 inches; weight, 7.7 - 209.0 grains; angle, 50 - 120 degrees (Fig. 57, g).

CHOPPER-HAMMERS (54)

These tools are combined in one major category because they present a common form. Most tools exhibit wear indicating both a chopping and hammering use: a fine breakdown is arbitrary, based upon the most conspicuous, or last use, of the tool. Material utilized is a flattish, oval, water-smoothed cobble, selected from bench gravel deposits. Modification was achieved by percussion blows striking flakes off the cobble edge. This knapping resulted in a unifacial flaked facet which varies from a low angle of 30 degrees, to high angle edges of 100 degrees. In a few instances, bifacial flaking produced a sinuous V-shaped use edge, due to the intersection of alternate flake scars. Rarely, heavy primary flakes struck off river cobbles were utilized. These chopper-hammers are identical to many specimens described by Dittert, et al, (1961, pp. 182-186) under a uniface chopper and edge hammer category. These tool forms occasionally exhibit areas of ground wear on the cutting edge, implying that they were also used in a filing motion comparable to the edge abraders, and/or as ground edge scrapers. They may have been also used in straight scraping activities, but the small, conchoidal, sheer fractures, necessary to indicate this use are not present, since the cobble materials are almost entirely medium-to-coarse-grained igneous rocks.

Choppers (31)

As discussed above, these tools have been categorized on the basis of the principal, or last, wear indicated on the cutting edge. This wear consists of "wing" flakes, which are short linear fractures, paralleling the plane of the chopping edge. Interpretation is based on experimental use of flaked tools in cutting wood. The cutting edge generally was flaked parrallel to the long axis of the cobble, although frequently dressing was also carried around on the ends. Location of the cutting edge on the side of the cobble contrasts somewhat with hammers, which frequently show an end-use edge. Dressing varies from one-third to two-thirds of the tool perimeter, and, in rare cases, edge flaking was carried entirely around the circumference. Size range: length, perpendicular to use edge, 2.9 - 5.2 inches; width, parallel to use edge, 2.9 - 6.0 inches; thickness, 1.0 - 3.0 inches; weight, 9.2 to 56.6 ounces; angle of cutting edge, 35 - 100 degrees (Fig. 58, a-b)

Hammers (23)

Use as a hammer is indicated by battered wear, which may be reproduced by striking a sharpened rock against a hard substance, such as another rock. In addition to the edge hammer, there are two spherical-shaped hammers. These consist of cobble cores, which have had many flakes struck off their surfaces. Adjacent flake scars intersect to form irregular ridge areas, which show the battered wear that indicates a hammering use. It is believed that hammers were used in dressing stone tools, sharpening metate grinding surfaces, processing bone and plant materials, and in the preparation of foods. Size range: length, 2.9 - 5.1 inches; width, 2.4 - 4.3 inches; thickness, 1.0 - 2.5 inches; weight,

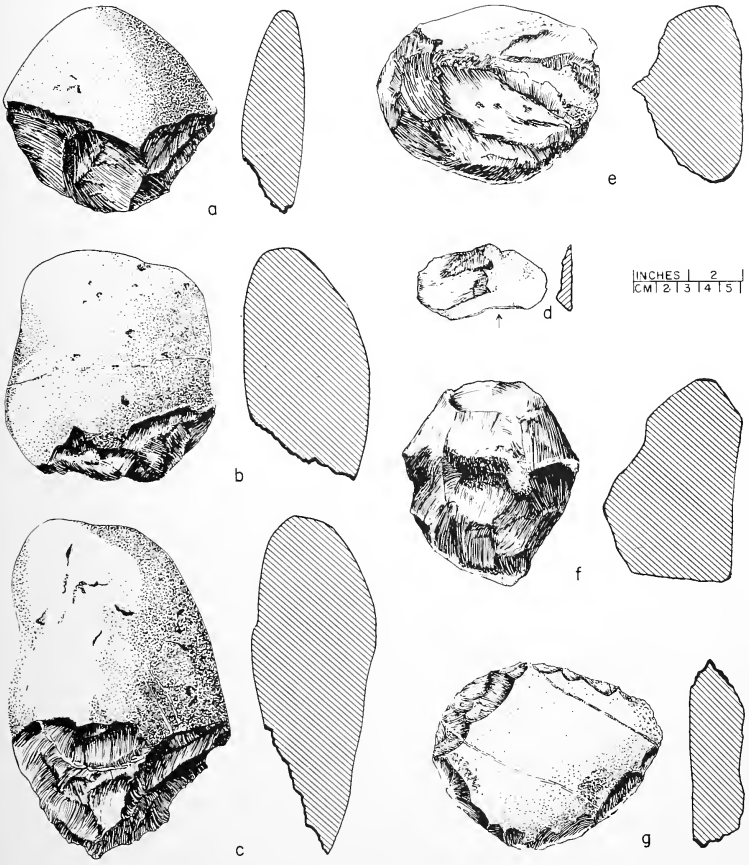


Fig. 58. Choppers, core, edge abrader, and hammers. a-b, choppers; c, core; d, edge abrader. Hammers: e, restricted edge; f, spherical; g, perimeter. Use area indicated by arrow where not apparent.

10.9 - 37.0 ounces; angle of pounding edge, 30 - 100 degrees (Fig. 58, e - g).

EDGE ABRADERS (3)

One tool is fashioned from a thin flake and two from unifacial edge-flaked cobbles. The sharp edges show a ground and polished wear, due to grinding. The direction of use is indicated by striation cuts, which run parallel to the direction of the flaked edge. This characteristic implies a sawing or filing motion used to cut a slightly resistant material, such as pendant material. The ground edge may either be straight or slightly concave. Size range: length, 2.2 - 4.3 inches; ground edge, 1.3 1.7 inches; width, 1.3 - 3.6 inches; thickness, 0.3 - 2.4 inches; weight, 0.7 - 37.0 ounces; angle of use edge, 60 - 93 degrees (Fig. 58, d).

CORES (9)

Cores are the residue of parent material from which stone tools have been fashioned. They are all water-worn cobbles or heavy primary flakes of such cobbles. Evidence of human modification consists of unifacial edge flaking scars, but no additional use wear, such as is found on the chopper-hammers and other edge-modified tools. Many edge cores probably have been employed secondarily for these other uses, which could account for the small number of examples in this category. One core also shows hammer pecking pits on its unmodified water-smoother surface. No occurrence of a spherical or turtle-back core is noted, and, as in the Reservoir-wide survey collection, no evidence of a prepared striking platform is present (Dittert, et al, 1961, p. 186). Weight range, 4.6 - 42.1 ounces (Fig. 58, c).

MANOS (58)

Manos are fashioned from oval stream-worn cobbles. Modifications have been performed by pecking and grinding, on one or both faces, and, in some cases, along the edges. However, within this edge-modified group, only a minor rectangular form shows major change in outline from the original oval cobble shape. This similarity in form made a difficult job of breaking down the sample series, and suggests that a detailed subdivision is not warranted. Analysis is based on the form of the milling face. Thick forms generally are blanks; thin forms are worn-out manos.

A two-fold subdivision of manos is based on the curvature of the width (longitudinal) axis and length (lateral) axis. This grouping was instigated, based on the worn examples, and then the little-used and blank manos were sorted into those categories. The two groups were sorted as follows: a stubby-oval category shows a pronounced longitudinal curvature and a slight lateral convexity; and an elongate category, showing a maximum lateral curvature, with little longitudinal convexity. The first group is characterized as one-hand, and the second as two-hand.

One-hand (17)

These manos were fashioned from small, flattish, oval, river-worn cobbles; in only a few examples was there any attempt to change this shape by pecking and grinding the edge. However, one or both faces are pecked and ground, to produce an oval grinding surface. In cross-section, the grinding face frequently takes on a pronounced longitudinal curvature, which, in extreme cases, becomes ridged to produce two opposed sloping facets. The lateral axis is less convex, and never faceted. Grinding is indicated by many wear-striations, which parallel, or are slightly angled to, the direction of the longitudinal axis. Parallel arrangement of these lines was produced by reciprocal grinding use, probably in an arc around the sides of a basin metate, or in a trough metate. Some of the edge-modified manos are sub-rectangular in shape, and resemble the one-hand, shaped forms described in the survey collection. The ridging is probably the result of a rocker motion used during grinding, and reflects an individual technique. Other manos in the one-hand category are far less convex, and probably were used in a shallow basin, or flat-bottomed trough metate. Size range: length, 4.5 - 7.4 inches; width, 3.4 - 4.3

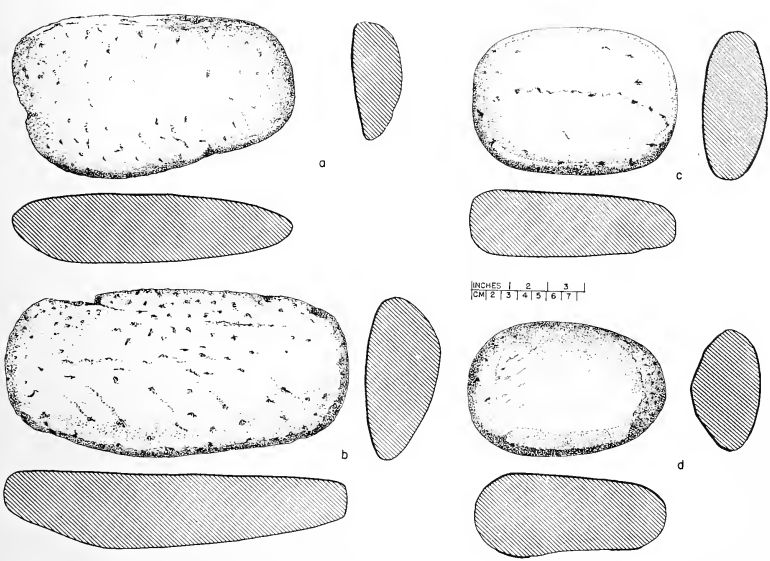


Fig. 59. Manos. a-b, two-hand manos. One-hand manos: c, shaped; d, cobble.

inches; thickness, 1.4 - 2.4 inches; weight, 23.0 - 74.0 ounces (Fig. 59, c-d).

Two-hand (39)

Although the source of the material for two-hand manos was the same river gravel deposits, they are more frequently modified along one or more edges to produce a shaped, oval-to-sub-rectangular, outline. Many worn specimens show a decided convexity in the lateral axis, indicating that these manos were used in a deep, U-shaped metate trough. The flatter examples tend to vary from this use-marking; one or two are even ridged transversely, like the one-hand type. It appears as if all of these manos were used in trough metates, which vary from a deep U-shape to a flat-bottomed form. The ends of many of these manos have been pecked and ground, to facilitate grinding against the metate wall, but the characteristic bevel, found on the ends of the grinding face of later Pueblo manos, is absent in this Los Pinos Phase sample.

Two-hand manos are quite similar to the two-hand trough forms from the survey collection (Dittert, et al, 1961, p. 188). Size range: length, 5.4 - 10.0 inches; width, 3.8 - 5.0 inches; thickness, 1.1 - 2.6 inches; weight, 21.7 - 78.6 ounces (Fig. 59, a-b).

General Considerations

Characteristics of this mano sample show similarities to both the Lithic and Pueblo Periods. It is felt that the Los Pinos Phase grinding implements show a transition between the two periods, and indicate a continuity of milling tradition, stemming from the Desert Culture Archaic, and developing into the horticulturally based society of the Anasazi Pueblo Culture. Further, they reflect the importance of wild and domestic seeds and grain in the Los Pinos Phase economy, as opposed to other food sources, such as wildlife.

METATES (45)

Metates were fashioned from selected, elongate river boulders, or thick sandstone slabs obtained from cliff outcrops. The block edges of the sandstone slabs are flaked; there is little evidence of pecking and grinding smooth. River boulders show little or no evidence of modification outside of the use area.

The grinding surface was fashioned by pecking and grinding smooth. The deep concave surfaces on many metates are due to advanced stages of wear. They break into two types, differentiated by milling surface; trough, and basin. Within the trough grouping a series is arranged extending from little-used blanks to worn-out specimens.

Trough (17)

Trough metates have roughly rectangular use surfaces, with a slight curvature along their long sides and some rounding of the ends. In longitudinal cross-section, they are rocker shaped, with both ends of the milling surface rising to intersect the upper face of the metate block. As seen across the lateral axis, the profile varies from one with a U-shape, a flattish bottom, and nearly vertical walls, to a profile showing a fairly smooth, concave curve. The upper wall of some worn metates shows a definite bevel, as if the initial surface had been wide and later milling concentrated along one restricted axis to produce a more narrow trough slot.

All stages of wear are indicated, some with definite forms. An initial stage contains long river cobbles, with a rectangular area of pecked incising, roughing out the incipient milling area. This form shows little grinding smooth and is convex only because of the original contour of the boulder. It corresponds very closely to examples obtained from Rosa Phase sites (Fig. 60, b). Second stage wear appears as a very slightly concave surface, which extends over nearly the entire surface of the block (Fig. 60, c). Final wear is described above, in the deeply concave examples. Many are broken through their bottoms and ends, because of wear which had proceeded far enough to weaken the block. Size range: block, length, 15.0 - 28.8 inches; width, 8.6 - 16.5 inches; thickness, 4.3 - 5.9 (plus) inches; incipient wear trough, length, 7.7 - 28.0 inches; width, 2.6 - 10.5 inches; depth, 0.0 - 1.0 inches; worn trough length, (?) - 16.8 inches; width, (?) - 11.8 inches (Fig. 60, a-d).

Basin (6)

Basin metates are present in two varieties, at least one of which may not be in primary association with the Los Pinos Phase. The first is a thick slab variety, an angular block of sandstone with little or no exterior modification. The milling area is oval in plan view, the ends of the oval are slightly pointed. In profile, this surface is deeply concave and has a reverse curve, so that it merges with the upper face of the metate block. Although only a few specimens are present, the formalized characteristics suggest that this is a valid grouping (Fig. 60, e).

A second variety of basin milling stones is identical to specimens collected from Lithic Period or Desert Culture campsites south of Farmington, and reported by Dittert (1958, p. 8). These metates are fashioned from thin unshaped slabs, and exhibit a long rounded-oval grinding surface in one face. These surfaces are very shallow; the maximum depth is in the center (Fig. 60, f). Size range: block, length, 17.5 - 24.0 inches; width, 10.2 - 18.5 inches; thickness, 2.4 - 6.0 inches; deep basin, length, 12.4 - 16.7 inches; width, (?) - 16.2 inches; depth, (?) - 3.9 (plus) inches; shallow basin, length, 10.8 - 11.8 inches; width, 6.5 - 7.4 inches; depth 0.3 - 0.5 inches.

One metate example shows a combination of characteristics in its milling surface. It appears to have been laid out for trough use; plan outline shows a rectangular grinding surface. However, the center of the trough is ground into a deep basin, which is broken through the bottom of the block (Fig. 60, a). It is inferred that the milling stone operator changed hand stones and grinding procedure to produce the basin.

The three grinding implements: closed end trough, shallow basin, and deep basin, each indicate a slightly different operating motion. Trough millers indicate a uniform, reciprocal motion along one axis. The pointed oval surfaces of the deep basin metates indicate a reciprocal grinding motion, in arcs, around the sides of the basin. Shallow basin metates with a rounded oval grinding surface, probably were ground upon with a back-and-forth motion, which changed slightly with each stroke.

Each was used with a companion mano or handstone, which was fashioned, and modified through use, to complement the netherstone or metate. Their function was to grind seeds and grain into meal, and possibly to pound nuts and berries.

GRINDING PALETTES (2)

Grinding palettes are small, flat, water-worn pebbles, which show grinding and cut striations on one face. Pebble edges

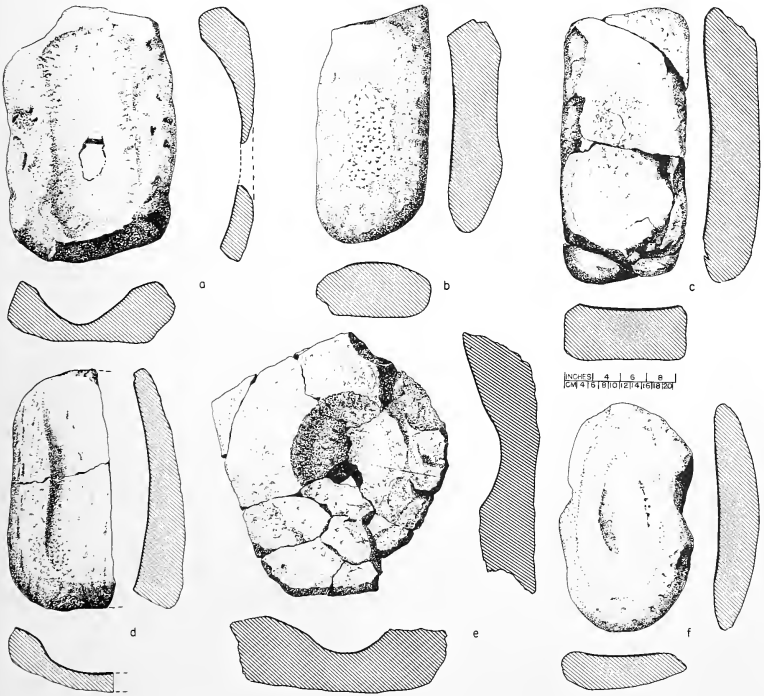


Fig. 60. Metates. Trough; a, trough converted to basin; b, incipient blank; c, wear just beginning; d, worn. Basin; e, deep; f, shallow.

and faces show no modification, except through use. On one specimen, cut incisions on the oval-shaped use area are all in one axis, criss-cross on the second. One shows a very slight ground depression due to wear, the other has a natural cup-shape on its upper modified face. Due to the small size of these stones, it is likely that they are hand-held anvils used for grinding, perhaps in smoothing another stone. Size range: length, block, 3.3 - 3.4 inches; grinding area, 1.3 - 2.6 inches; width, block, 1.8 - 2.4 inches; grinding area, 0.8 - 1.9 inches; block thickness, 0.6 - 0.8 inches; grinding area depth, 0.1 - 0.2 inches (Fig. 61, b).

PAINT GRINDER (2)

Mineral paint was ground to powder with an unshaped handstone. The grinder consists of a very heavy flake, struck from a faceted water-smoothed cobble. Grinding occurred on a slightly smooth face, indicated by sets of parallel striations. Red hematite mineral still adheres in patches on part of the grinding area. This mineral paint is, in turn, coated in spots by a thin film of whitish caliche. It is inferred from this that the stone was handheld for use in grinding red hematite on a nether stone. The grinding motion was reciprocal, and during the process of pulverizing the mineral, a coating of red paint became smeared over part of the handstone. A second handstone is very similar to the one described above, but lacks the paint stain. Size of described specimen: length, total, 4.8 inches; use area, 4.0 inches; width, total, 3.2 inches; 2.2 inches; 2.0 inches; weight, 23.88 ounces (Fig. 61, c).

PAINT PALETTE (1)

Mineral paint was ground and mixed on a water-smoothed cobble. This cobble was not intentionally modified; the only evidence of use consists of cut striations, indicating grinding, and a stain of red and light-green minerals. These stains and grinding marks are in a very shallow, oval-shaped dip, on a flattish face of the river cobble. Striations predominately are parallel and in one direction; a few angled marks suggest a different reciprocal grinding motion. Also on the surface of the cobble, are two colors of mineral paint: a red stain overlying a light green. The red material probably is iron hematite. It exhibits two shades: a dark, blackish-red and a lighter, rust-red. The green material, probably copper malachite, is observed in small pits in the rock surface, as though it was ground first on the palette, followed by the red hematite. The two shades of red might have been obtained by mixing different batches with differing amounts of charcoal; or they may be natural color variations. When the surface of the palette was partially washed, a light area of stain was found to extend from the paint pigment over one side of the palette. This stain may have been formed by a liquid paint base, perhaps a vegetable acid, which affected the darker weathered surface of the cobble, and cleaned down to the original cobble color. Size: length, 6.5 inches; use area, 1.5 - 2.0 inches; cobble, 4.5 inches; thickness of cobble, 3.1 inches; depth of use area, 0.2 inches (Fig. 61, a).

The two grinding palettes, described above, may also have been used for grinding paint; however, no mineral color was found adhering to their surface.

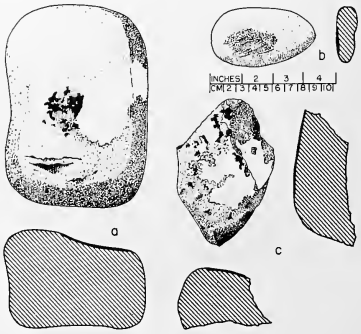


Fig. 61. Paint palette, grinding palette, and paint grinder. a, paint palette; b, grinding palette, c, paint grinder.

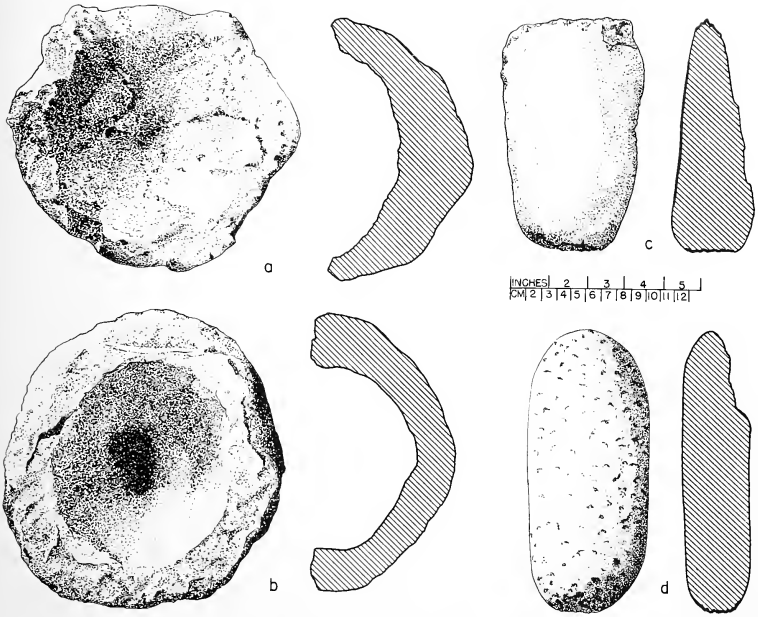


Fig. 62. Bowls and pounders. a-b, bowls. Pounders: c, axe on butt end; d, one end used

POUNDERS (3)

These tools show wear, and modifications indicating several uses. However, each has one pitted end, suggesting use as a pounder. They were fashioned from oval, to elongate, water-smoothed rocks, with little shaping. The pounding ends are roughly pitted, but show no striations or smoothing such as might be expected from a rotary grinding use. Similar wear and use is inferred from the pitted ends of many one-hand manos. Some modification is found on the flattish sides of two pounders, and at least one has also been classified as a two-hand, biface mano. A third specimen is more variable. Opposite the pounding end is a tapering, V-shaped axe bit. The cutting edge is flaked bifacially. All of these tools probably were used in pounding and pulverizing seeds, berries, nuts, and other plant foods in a mortar bowl. Since a rotary grinding motion is not implied by the observed wear, the term "pounder" is employed, rather than "pestle." Size range: length, 6.2 - 7.3 inches; width, 3.2 - 3.9 inches; thickness, 2.2 - 2.6 inches (Fig. 62, c-d).

BOWLS (3)

The bowls are utilized hemispherically-shaped concretions. They are large, natural-occurring containers, with flat or irregularly scalloped rims, rounded bases, and cup-shaped interior depressions. Pecking and grinding modification is scant, but occurs occasionally on the base, rim, or in the interior depressions. The interior

surface either is U-shaped or has a near-conical profile. They may have been used as liquid containers, or mortars, or both. However, no rotary grinding striations were observed on interior surfaces. Pounders may have been used in the two examples which show some interior pecking. Size range: diameter, block, 5.1 - 7.7 inches; container, 4.1 - 5.9 inches; block height, 1.9 - 3.8 inches; wall thickness, 0.7 - 1.6 inches; container depth, 1.6 - 2.8 inches (Fig. 62, a-b).

POLISHERS (8)

The polishers were fashioned from flattish, oval, river-worn cobbles, and show one or two highly convex grinding faces. One example shows edge-shaping by pecking; the rest lack this characteristic. The use faces were fashioned by pecking and grinding smooth; most of the grinding probably is due to use. Some examples show criss-cross striations, indicating reciprocal grinding use, in many different directions. One specimen has a luster, highly polished, such as would be obtained in fine grinding. One grinding face has been pecked, to resharpen it, and only small patches of the original high polish are left. It is inferred that these tools were used to smooth and polish the clay floor-plaster. This is borne out by the location of the recovered specimens: they all came from houses (Structures 9 - 10) with remains of plastered floors. Size range: length, 4.0 - 6.0 inches; width, 3.4 - 5.0 inches; thickness, 2.0 - 5.0 inches (Fig. 63, a-b).

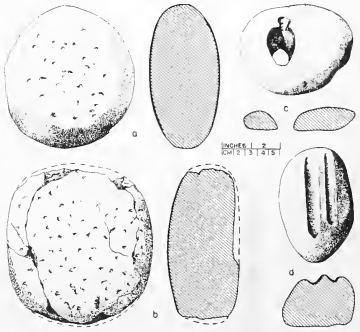


Fig. 63. Polishers, perforated pebble, and shaft tool. a-b, polishers; c, perforated pebble, d, shaft tool.

PERFORATED PEBBLE (1)

A flat, oval, water-smoothed pebble having a natural, oval-shaped, water-formed hole through it. This hole was intentionally enlarged by pecking; the edges of the hole show a polished smoothing. Its appearance is similar to fertility symbols used by historic Pueblo Indians. Size: length, cobble, 3.9 inches; hole, 1.8 inches; width, cobble, 3.2 inches; hole, 0.9 inches; thickness, cobble, 1.5 inches; hole depth, 1.2 inches (Fig. 63, c).

SHAFT TOOLS (3)

Two shaft tools are fashioned from pebbles, one from a sandstone block, and all show one or more grooves across one face. They vary in shape and size. The pebble-sized examples are small; the block is large and irregular. One water-smoothed pebble specimen is a flattened oval in plan and section, and shows no modification except for the grooves. The second example is sub-rectangular in plan and hemispherical in its short cross-section. The ends have been flaked, and the upper face appears to have been ground smooth. The irregular block shows no evidence of end or face modification, and probably was obtained from a cliff outcrop. Natural cleavage produced a rectangular block.

Longitudinal grooves, produced by pecking and grinding smooth, are found on the flat faces of all three stones. The water-worn pebble has two parallel grooves which extend across the length of the stone, separated by a high medial ridge. In cross-section, they are U-shaped, and are flat to slightly convex along their length. When viewed in an oblique light, they show a slightly polished luster, probably the result

of shaft smoothing and straightening. The second specimen has a very fine and shallow U-shaped groove, entirely flat along its length. It may have been used to grind and shape an awl point. The coarse-grained sandstone block has a large, deep, U-shaped groove, across the width of one face. Use as a shaft straightener and abrader is inferred from the groove form and wear. Both pebble stones probably were hand held during use. The block straightener probably was used as a stationary anvil, the shaft being pulled back and forth over the stone. Size range: length, block, 3.3 - 8.7 inches; groove, 2.7 - 5.2 inches; width, block, 1.6 - 7.2 inches; groove, 0.2 - 1.3 inches; block thickness, 0.9 - 4.8 inches (Fig. 63, d).

PECKED CIRCLE (1)

A pecked circle occurs on the weathered surface of a cobble fragment, a segment of a larger, water-smoothed cobble, fractured to produce a cone-shaped object. The weathered cobble surface became the slightly convex top of the cone; a symmetrical circle was pecked upon this surface. No grinding striations are apparent; nor is a use interpretation. Size: rock length, 7.5 inches; width, 6.0 inches; thickness, 4.2 inches; circle diameter, 1.9 inches (Fig. 64, b).

SLAB COVERS (5)

Oval slabs were shaped by edge flaking. Infrequently, small areas of the slab faces are pecked or ground smooth, but most specimens show a natural sandstone cleavage. These specimens were probably used as covers for hatches and subfloor pits. One specimen was lying on the floor of Structure 10, immediately adjacent to subfloor Pit 13; both size and location imply that it was a cover for that particular cist. Use of slabs in this fashion would have cut down the danger of children falling into the deep, subfloor pits, and increased the useable house floor space. Size range: length, 1.3 - 2.0 feet; width, 1.2 - 1.8 feet; thickness, 0.2 feet (Fig. 64, a).

GILSONITE (2)

Fragments of gilsonite were recovered from one structure. One piece is unworked and may have been picked up from the bench gravels but never used. A second piece has a beveled edge, and may have been fashioned as an ornament. The use of gilsonite in ornaments, particularly pendants, was established from the general survey collection. It is possible that these two fragments were intended for such a use.

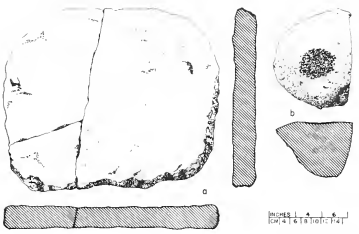


Fig. 64. Slab cover and pecked circle. a, slab cover; b, pecked circle.

Description of Bone and Antler Tools

Few artifacts fashioned of bone or antler were recovered from excavation; even fewer tool types are abstracted from this collection. Description of the method of manufacture follows that of Kidder (1932, p. 199). Location is given in Table 3.

AWLS (10)

The most common type of bone tool is fashioned from animal bone, with a ground tapering point. Description of this tool form is abstracted primarily from four whole specimens. Manufacture was performed by file cutting a long thin piece of bone from the circumference of a long bone shaft. Evidence of this consists of the presence of two facets exhibiting many parallel striations lengthwise down the tool shaft. Also, a lip frequently occurs, indicating that the bone was broken when the incision extended nearly to the hollow central portion of the bone shaft. The two cut facets imply that filing was started from two areas on the exterior and carried in at an angle to intersect; this produced a pie-shaped cross-section. The linear file cutting may have been performed by an edge abrader. Where the tool was cut from the center of a long bone shaft, the butt end is fractured by blows; some specimens show several lateral cuts at this end.

TABLE 3

PROVENIENCE OF BONE TOOLS, ANTLER TOOL, AND TEXTILE IMPRESSIONS

PROVENIENCE \ TOOLS AND TEXTILES	Awls	Gouge-scraper	Bead	Worked Tine	Coiled Basketry	Plain Fabric (?)	Twined Fabric	Cordage	TOTAL
LA 4257									
Houses									
Structure 1									
Pit 1		1							1
Refuse									
Test 1	1								1
LA 4289									
Houses									
Structure 3									
Floor	1								1
Structure 9									
Main Room									
Floor					3				3
Pit 3					3				3
Pit 4					2				2
Fill				1	7		2	6	16
Structure 10									
Main Room									
Floor						2			2
Pit 1	1								1
Pit 10					1				1
Fill			1						1
Antechamber									
Floor	1								1
Fill	1								1
Structure 11									
Main Room									
Pit 2	1								1
Pit 3					1				1
Pit 11	1								1
Fill	1								1
Underlying Pits									
Structure 6									
Pit 2	2								2
TOTAL	10	1	1	1	17	2	2	6	40

In half the sample, an articular facet forms the butt end of the tool shaft. Edges and faces of the shaft and, occasionally, the cut butt end, exhibit many angled sets of near-parallel striations, as if an abrasive had been used to smooth rough edges. These marks are present also on the tapering needle point, suggesting that the use end was fashioned by grinding. Both shaft and point surfaces are smoothed and polished; probably, partly by abrasion and, especially the point, through use. This polish takes on a high luster in the case of three burned specimens. The polish abrasion could have been produced by a flat piece of sandstone, or rubbing the bone over a large block of sandstone to produce a rasp grinding effect.

Five specimens retain their tapering point; they indicate two styles. One point category has an abrupt taper with a concave outline, and exhibits a high angle (15 - 25 degrees) taper to the point. A second grouping has long tapering outlines to the use point. In outline, the point is straight-to-slightly convex, and merges at about a 9 degree angle. They probably were used for perforating leather and basketry for sewing. Size range: total length, 3.4 - 6.0 inches; shaft width, 0.5 - 0.6 inches; shaft thickness, 0.2 - 0.3 inches; point length, 0.8 - 1.6 inches (Fig. 65, a-e)

GOUGE-SCRAPER (1)

One bone tool has a "prow-shaped" point which contrasts considerably with the needle-type awl point. This piece was fashioned by longitudinal filing and breaking of an irregular fragment of a long animal bone.

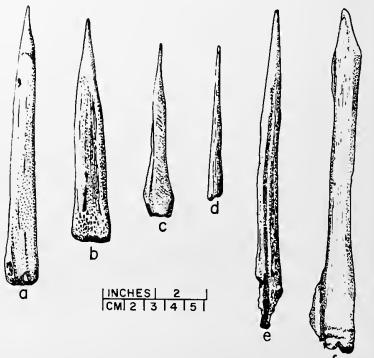


Fig. 65. Awls and gouge-scraper. Awls: a-b, abrupt taper; c-e, gradual taper; f, gouge-scraper.

Across the butt end of the tool shaft are several U-shaped cut marks. A chopping tool apparently was used to strike several cross-cuts, one of which broke the bone from the parent material. Neither the shaft nor the butt end have been ground smooth; they are very irregular and rough. The use end of the shaft was broken by a fracture angled across the shaft. This break forms a high angle (40 degrees) point with one side of the shaft. These two converging facets are ground slightly smooth; perhaps by scraping and gouging against a soft material. Little use is indicated; but what smoothing there is may be attributed to use wear. Size: total length, 6.7 inches; shaft width, 0.8 inches; shaft thickness, 0.3 inches; point length, 0.5 inches (Fig. 65,f).

BEAD (1)

A short cylinder was fashioned by sectioning a hollow bird bone. Under a hand lens the cuts appear irregular, with some attempt at smoothing, as indicated by grinding striations and a slight bevel to one edge. Size and form suggest use as a strung bead. Size: length, 0.2 inches; maximum diameter, 0.2 inches.

WORKED TINE (1)

A burned fragment of deer antler shows grinding and smoothing. This piece consists of two right angle sections of antler tine, one of which shows grinding: the other shows no modification, and has been broken off close to the junction point. No use is apparent.

Description of Textile Impressions

by

Beth L. Dickey

No specimens of actual textiles are present. Information about this perishable material comes entirely from impressions on the backs of chinking adobes in non-ring houses. The location of these specimens is given in Table 3. The original basketry probably was worn out, discarded, and then used as chinking material between construction logs. Mud was applied over this filler, providing the cast impressions. Often, several impressions are present on a single chinking adobe, together with corn cob impressions.

Study of textile specimens was made wtih positive latex casts of the negative adobe impressions. This technique allows the positive to be removed from undercut hollows. Although some of the casts are very sharp and show fine detail clearly, the extent and accuracy of the analysis is limited by the nature of the material. Only one surface of the material shows, there are no cross-sections; stitches and foundation cannot be probed to determine their method of construction. Thus, information must be inferred from the surface characteristics, and from impressions made by foundation elements where the stitches have broken away. In consequence, the identification of interlocking or uninterlocking coiled basketry stitches, and of fabric weave, is conjectural, though based on characteristics observed in the study of actual basketry and

TABLE 4·

DATA FROM COILED BASKETRY IMPRESSIONS, VALENTINE VILLAGE

DESCRIPTIVE DATA / PROVENIENCE AND IMPRESSION NO.	STITCH		STITCH SLANT	SPLIT STITCH RATIO		SELF RIM	FOUNDATION ELEMENTS				STITCHES PER INCH	COILS PER INCH	REMARKS
	Interlocked	Uninterlocked		Number of split stitches	Total number of stitches		Rod	Split Rod	Two Rods	Bundle			
Structure 9													
1		X	/	1	17	—					8	6	
2		X	/	2	20	—					7	6	
3	X		/	0	31	—					7	5	
4		X	/	0	61	—					9	6	1 Double Stitch
5		X	/	2	45	—	X			X	7	5	
6	—	—	/	0	11	—	X				—	—	
7		X	/	5	121	—			X		9	5	2 Double Stitches and 1 Rod is Split
8	—	—	/	1	15	—					9	6	
9		X	/	0	20	—	X			X	8	5	
10		X	/	1	25	—	X				9	5	
11		X	/	0	32	—		X		X	8	5	
12		X	/	1	27	—					9	6	
13		X	/	0	28	—					8	5	
14		X	/	1	20	—					8	5	
15		X	/	1	54	—				X	9	6	
Structure 10													
16	X		/	0	50	—					7	6	
Structure 11													
17	X		/	—	—	X	X or X			X	7	—	Impression Taken From Clay Lid

X, Characteristic present; —, Characteristic undeterminable; Blank, Characteristic absent or not observable.

fabric (Morris and Burgh, 1941, and Kent, 1957). The notation of foundation elements is minimal, since all the elements in a fragment may not be represented in the impression.

Three categories of textiles are described below: basketry, fabric, and cordage. The cordage impressions are found on two fragments of twined fabric, and may originally have been sewn or tied to the fabric.

COILED BASKETRY (17)

This is the best represented category of textiles, with sixteen impressions from structural adobe, and one from a clay lid for a basketry jar. All three non-ring houses produced this material.

All the specimens represented are close coiled, with very few split stitches. Uninterlocked stitches are most common, but interlocked stitches are also represent-

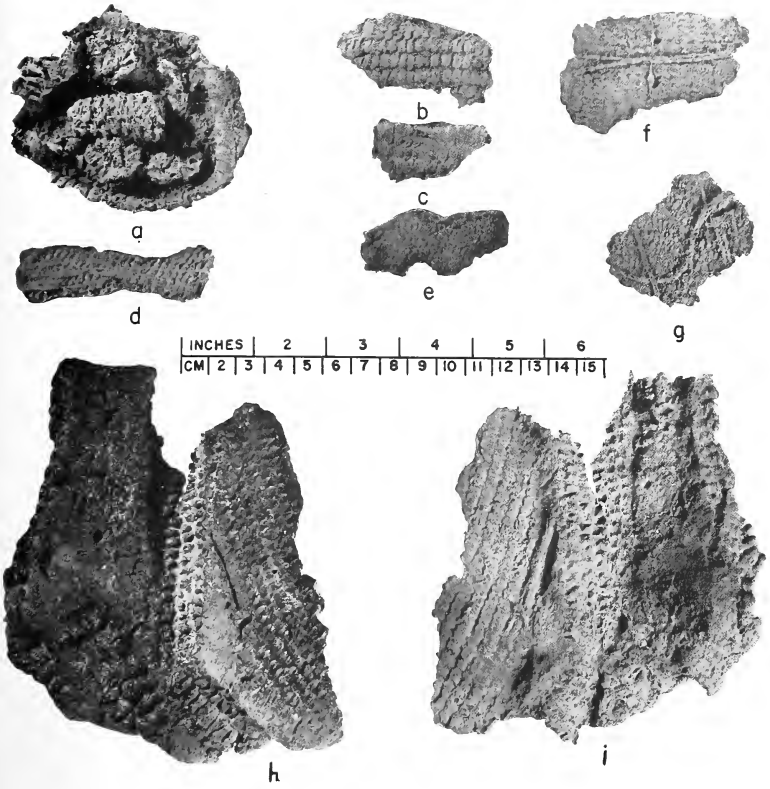


Fig. 66. Textile impressions. Coil basketry: a, jar rim; b, basket wall, uninterlocked stitch; c, basket wall with stitching worn to expose rod foundation; d-e, plain fabric (?); f-g, twined fabric with cordage on surface. Basket wall, interlocking stitch; h, clay impression; i, latex impression taken from h. All other impressions, a-g, are latex.

ed. The stitching material is uniformly smooth-surfaced rather than fibrous (Fig. 66, a-c, h-i). Only one sample of rim is present, but it implies the shape of the basket. This clay lid impressions shows a simple self-rim, with a tapered, possibly split, rod extending a short way from the coil termination. It apparently was used to close a jar-shaped basket. No centers are represented, and no splices or decorative elements are discernible. (see Lids, Other Uses of Clay) and (Fig. 66, a).

PLAIN FABRIC (?) (2)

Two impressions were found, made by either a plain weave or a fine twined fabric. A very fine close-coiled basket, with interlocking stitches on a one-or two-rod foundation also could have made such impressions. The stitches tend to be elliptical, as though they were cordage rather than splints. The casts do not show fibers in the stitches, but neither do they show the sharp edges and smooth stitches typical of the coiled basketry casts. The individual stitches slant slightly to the right, and tend to form a diagonal pattern. No split stitches show on either impression. The foundation or warp shows in three places: in two, as a single thin element about half the width of the stitches; in one, as two parallel elements of the same type. The impression is not clear enough to tell if these are cordage or solid elements. The stitch count is twelve to an inch; the warp count, eleven to an inch (Fig. 66, d-e).

TWINED FABRIC (2)

Two impressions show rather definite characteristics of twined fabric. The stitches are a Z-spun, single-ply thread, with a right-hand twist around the warp element. However, the warp is not exposed on these fragments, so its composition cannot be determined. The weft count is twelve per inch; the warp count, seven per inch (Fig. 66, f-g).

CORDAGE (6)

Six segments of S-spun, Z-twist, two-ply cordage, and one square knot, are also shown on the surface of the twined fabric (Fig. 66, f-g).

ANALYSIS OF ARTIFACT ASSEMBLAGES

Los Pinos tools are segregated on the basis of location with regard to architecture, Navajo tools on the basis of surface finds, and trash tests within the area of the Navajo surface component.

Inferential analysis of this tool assemblage has been conducted following a general outline described by Morris (in Woodbury, 1960, p. 60). This includes the sorting of tools by their inferred use categories, and an examination of those tool groups found on the floor of each house structure.

Los Pinos Phase Assemblage

Figure 67 lists the floor contact tools for both sites; Figure 68, those tool types which were excavated from house and subfloor pit fill when these structures did not contain any Rosa Phase or Navajo Period ceramics. This procedure meant the elimination of many specimens, but the resulting artifact lists appear to be very reliable indications of the Los Pinos Phase tool assemblage. Inspection of these figures will reveal that the non-ring houses, although

Fig. 67. List of all floor contact artifacts.

ARTIFACTS	LOCATION BY HOUSE TYPE	
	Ring	Non-ring
Gray ware	-	3
Brown ware	-	2
Gobernador Polychrome	-	1
Corner notch, Expanding stem point	2	-
Straight stem point	1	-
Ovate blade	1	-
Chipped knife	1	-
Punch	1	-
Side scraper	-	1
Ground edge scraper	-	1
Chopper	-	1
Hammers	4	1
One-hand manos	-	5
Two-hand manos	2	4
Trough metates	3	3
Deep basin metates	1	3
Slab covers	-	2
Awls	1	1
Coiled basketry	-	3
Plain fabric (?)	-	2
TOTAL	17	33

Fig. 68. List of artifacts occurring in the fill of houses entirely lacking Rosa Phase and Navajo Period ceramics (Houses 1, 3, 4, 5, 7, 8, 9, and 11, LA 4289).

ARTIFACTS	LOCATION BY HOUSE TYPE	
	Ring	Non-ring
Brown ware	-	15
Chipped knife	1	-
Disc	-	1
Side scraper	1	-
Choppers	1	3
Hammers	-	2
Edge abrader	1	-
Core	-	1
One-hand manos	2	1
Two-hand manos	4	7
Trough metates	1	1
Shallow basin metate	-	1
Paint palette	1	-
Bowl	-	1
Polishers	-	4
Slab covers	1	1
Limonite	1	-
Awls	-	3
Worked tine	-	1
Coiled basketry	-	12
Twined fabric	-	2
Cordage	-	6
TOTAL	14	62

they were in the minority, produced more than twice as many specimens as the ring houses. Keeping this fact in mind, a further inspection of the occurrence of tools by house type shows few significant differences. An exception to this is the occurrence of brown and gray ware sherds exclusively in non-ring houses. Other exceptions are the basketry and cordage, which were found also in non-ring houses. However, their occurrence here might be one of preservation, since it was these houses which produced the largest quantities of burned chinking adobes to yield such impressions. Generally stone tools were not found in large enough quantities, by type, to demonstrate differences in house type occurrence. Differing occurrences within the few large groups, such as the manos and metates, may be explained by the higher tool yield in non-ring houses. Just why these houses should be so productive is another matter. All of them burned, which is one contributing factor, but then many of the ring houses also seem to have burned. One specimen, a sherd of Gobernador Polychrome found on the main room floor of Structure 10, Valentine Village, is eliminated from consideration, by prior knowledge of Navajo Period ceramics. Because of the general correspondence between the two lists, the tools and other implements have been combined to make one artifact assemblage for the Los Pinos Phase:

*Gray ware	One-hand mano
*Brown ware	Two-hand mano
Corner notch, Expanding stem point	Trough metate
Straight stem point	Shallow basin metate
Ovate blade	Deep basin metate
Chipped knife	Paint palette
Punch	Bowl
Disc	Polisher
Side scraper	Slab cover
Ground edge scraper	Limonite
Chopper	Awl
Hammer	*Coil basketry
Edge abrader	*Twined fabric
Core	*Plain fabric (?)
	*Cordage

* associated exclusively with non-ring structures.

INFERRED USE GROUPING

Beside the grouping of tools by their material, form, and location within the site, the tool sample may also be organized in terms of inferred use of each artifact type. Often this provides a double listing, since some tools may have had multiple uses for the same cutting or grinding edge, just as one specimen will often show several different use edges. These inferences are summarized for the Los Pinos Phase in the following listing:

Food Production:
- Small game hunting and butchering
  - point
  - blade
  - chopper
- Plant food preparation
  - metate
  - mano
  - stone bowl

Manufacture:
- Working of clay
  - polisher
- Wood working
  - chopper
  - side scraper
  - drill (?)
- Working of hides and skins
  - ground edge scraper
  - chipped knife
  - punch
  - awl
- Working of bone
  - edge abrader
  - chipped knife
- Working of plant materials
  - chipped knife
- Working of stone
  - hammer
  - edge abrader
  - core

Storage:
- slab cover
- clay vessel
- stone bowl
- basketry

Ornamentation:
- paint palette
- mineral paint

ARCHITECTURAL GROUPINGS OF TOOLS

It is felt that tools found on the floor of excavated structures not only provide the most reliable indication of correct association of portable artifacts and architecture but also some indication of assemblages

Fig. 69. Listing of floor contact specimens by house structure. Number of specimens appear in parentheses.

LA 4257, Power Pole Site
- Structure 1
  - Main Room
    - Ovate blade (1)
    - Hammers (3)
    - Two-hand mano (1)
    - Trough metates (2)
- Structure 2
  - Deep basin metate (1)
- Structure 3
  - Two-hand mano (1)

LA 4289, Valentine Village
- Structure 1
  - Straight stem point (1)
  - Punch (drill ?) (1)
- Structure 2
  - Corner notch, expanding stem point (1)
  - Hammer (1)
- Structure 3
  - Corner notch, expanding stem point (1)
  - Chipped knife (1)
  - Awl (1)
- Structure 4
  - Incipient trough metate (1)
- Structure 9
  - Main Room
    - Ground edge scraper (1)
    - One-hand manos (4)
    - Two-hand manos (3)
    - Deep basin metate (1)
    - Coiled basketry impressions (3)
- Structure 10
  - Main Room
    - Gobernador Polychrome (1)
    - Side scraper (1)
    - Hammer (1)
    - One-hand mano (1)
    - Slab covers (2)
    - Plain fabric (?) impressions (2)
  - Antechamber
    - Gray ware (3)
    - Chopper (1)
    - Two-hand mano (1)
    - Incipient trough metate (1)
    - Deep basin metates (2)
    - Awl (1)
- Structure 11
  - Main Room
    - Brown ware sherds (2)
    - Incipient trough metates (2)

and customs. This is best illustrated in the metates and manos which make up twenty one out of fifty of the pecked and ground tools listed in Figure 69.

Concentrations of grinding implements are found in house Structure 1 at Power Pole Site and in Structures 9, 10, and 11 at Valentine Village. These tools generally are found set back against the edge of the main room, rather than in the antechambers, except in the case of Structure 10 at Valentine Village, where milling must have been performed in the antechamber room. The placement of two metates, adjacent to shallow basin pits in Structure 11, suggest that meal was ground into these pockets. Within the same structure, a cache of three two-hand manos, covered with an inverted stone bowl, was found in the bottom of Pit 1. This group of tools represents a set of stored milling tools probably set aside for use by one individual. Storage of stone tools was also found in sub-floor Pit 10 in the main room of Structure 10, LA 4289. Other tools listed in Figure 69 were randomly placed, and do not exhibit characteristic location within houses. Chopper-hammers were frequently observed in the exterior sheet refuse or found in the trash house fill. It is inferred, from this distribution, that they were employed in outside activities, as opposed to milling, which seems to have been an indoor job.

Tool Assemblage of Navajo Refuse Component, Valentine Village

The assignment of tools to a Navajo complex is a less successful endeavor than that for the Los Pinos Phase because the architectural setting is lacking. However, some idea of the tools which do not go with the Los Pinos Phase can be gained by pulling out the tools excavated from trash tests 2 and 3, as well as those surface specimens collected from the general area of the Navajo trash. The following listing is questionable, due to the nature of the provenience.

Triangular point (2)	Graver (1)
Side notch,	Choppers (3)
Broad spur point (1)	Hammers (2)
Pinnate blade (1)	Two-hand manos (4)
Ground edge knife (1)	Grinding palette (1)
Drill (1)	Pounder (1)
Side scraper (1)	Shaft tools (3)
End scraper (1)	Gilsonite (1)
Ground edge scraper (1)	

Possible Association of Other Tool Types

Although the above listings account for a majority of the tools, there are several forms which may be compared to cultures not previously discussed. A stemmed, indented point probably was re-used by either Los Pinos or Navajo peoples from an earlier Lithic Period occupation in the Reservoir District. Two shallow basin metates may also be referred to this archaic culture, and have been re-used by Los Pinos peoples.

NON-ARTIFACTUAL DATA

The discussion in Chapter 1 described the current environmental site surroundings and potential resources available today for use at these localities. This section will deal with evidence of past site environments, and the use of these resources. Where certain aspects of the environment have remained static, interpretation of the past may be made from a description of the present conditions. On the other hand, minor fluctuations must be determined from material recovered from excavations. Much of this interpretation, dealing with the Reservoir District as a whole, will be abstracted from the many site reports to be presented in the future. The following discussion will focus on the scant collection of environmental remains recovered directly from Valentine Village and the Power Pole Site.

Unanalyzed samples, such as pollen and soil samples, and mammal remains from Valentine Village, will be held on hand until specialists can be enlisted to study those materials.

Geological Materials

Two primary types of geological materials were utilized by Los Pinos peoples:

clay and lithics. A gray clay was extensively used for architecture and the making of portable artifacts. The exact source of this plastic material is unknown, but it could have been obtained from several areas. The prehistoric flood plain, which was aggrading with fine silt and clay during the Los Pinos Phase (Dittert, et al, 1961, p. 21) probably contained a clay mud suitable for these uses. Other possible sources are lens deposits of shaley clay interbedded within the outcropping sandstone of the canyon wall, and Pleistocene (?) alluvial clay forming part of the site bench capping. Only a petrographic analysis could determine which of these deposits actually were employed.

Lithic materials employed in construction and for portable stone artifacts, were probably, derived from sandstone outcrops and bench gravel deposits. The pecked and ground tools were manufactured principally from the sandstone and quartzitic sandstone of the cliff side; particularly manos and metates, but also bowls and slab covers. Heavy flaked tools, such as the chopper-hammers, edge abraders, scrapers, and discs, were fashioned from igneous rocks and quartzites found in the bench gravels. Chipped tools generally are of fine grain silicates, also obtainable from the local gravels. Iron oxides, such as limonite and hermatite, as well as copper malachite, were used by Los Pinos people in paints; their source is unknown. Gilsonite, probably used in making pendants, was not found in pure Los Pinos Phase association. It is obtainable locally from the bench gravels.

Two material types, obsidian and pedernal chert, are foreign to the Reservoir District: their occurrence is explainable as introduced trade material. Obsidian may have been derived from the Animas Valley, northwest of the Reservoir District, and perlite obsidian probably was brought from as far away as the Jemez Mountains of north-central New Mexico. However, no artifacts of perlite occur in houses that do not also contain Pueblo or Navajo sherds, and most examples of obsidian were collected from the surface. Therefore, most of these specimens probably date later than the Los Pinos Phase. Association seems particularly good for the Navajo Period. The same is also true of another non-local pedernal chert found in the Chama Valley near Abiquiu, New Mexico. Therefore, trade lithics do not indicate that the Los Pinos people had contact outside of the Reservoir District: all of their geological materials were readily at hand.

Plant Remains

Two types of plant remains have been identified: house construction logs and corn cobs. The logs were submitted to the Tree-

Fig. 70. Structures containing identified juniper logs. Specimens have been identified by Thomas A. Lee, Jr., Assistant, Laboratory of Tree-Ring Research, University of Arizona.

PROVENIENCE	NUMBER OF SPECIMENS
LA 4257, Power Pole Site	
Structure 1	
Main Room	
Superstructure logs, floor contact	11
Pit 5, log-filled trench	2
Trash Test 2	
Pit 1, fill	1
LA 4289, Valentine Village	
Structure 3	
Pit 4, fill	2
Structure 4	
Superstructure logs, floor contact	2
Structure 9	
Main Room	
Superstructure log, second course	1
Superstructure logs, floor contact	2
Superstructure logs, room fill	3
Structure 10	
Main Room	
Superstructure log, first course	2
Superstructure logs, floor contact	10
Superstructure logs, house fill	11
Pit 1, fill	1
Pit 2, fill and bottom	2
Pit 11, fill	2
Pit 12, fill	2
Pit 13, fill	2
Antechamber	
Superstructure logs, floor contact	1
Superstructure logs, room fill	2
Structure 11	
Main Room	
Pit 1, fill	3
Pit 2, fill	1
TOTAL	63

Fig. 71. List of structures containing impressions and charred specimens of corn cobs.

PROVENIENCE	NUMBER OF SPECIMENS
LA 4257, Power Pole Site	
Structure 1	
Main Room	
Pit 4	7
LA 4289, Valentine Village	
Structure 2	
Pit 1	3
Structure 9	
Main Room	
Floor	12
Pit 3	14
Pit 4	13
Fill	159
Structure 10	
Main Room	
Pit 3	17
Pit 11 (*)	1
Fill	106
Structure 11	
Pit 9 (*)	1
Exterior Pit at Structure 2	
Pit 2	2
Underlying Pit at Structure 6	
Pit 4 (*)	1
Test 1	
Fire Basin 1	2
TOTAL	338

* charred cob

Ring Laboratory, University of Arizona, in hopes that dendrochronological determinations could be made. However, the specimens were all juniper, which has an erratic ring growth, and therefore is unsuitable for this purpose. But the fact that a total of sixty three specimens from six structures and one exterior pit all were identified as juniper, gives some indication of the local environment (Fig. 70). It is evident that juniper was common in the vicinity of the site and probably was selected over other trees for construction. This may have been because it grows reasonably straight, and therefore would be advantageous for the cribbed type of superstructure construction.

Evidence of domestic corn consists of many impressions of cobs on the interior side of fired chinking adobe, as well as a few charred specimens (Fig. 71). The impressions were unusually prevalent in non-ring houses, but also occurred in pits and ring-house fills. The number of specimens indicates that corn was common, and must have been an important part of the diet. Since the impressions are always on the unsmoothed side of the chinking adobe, it probably is safe to assume that large openings between structural logs were filled with cobs and, incidentally, also basketry fragments, and an exterior coating of mud was applied over this chinking to provide a seal.

Animal Remains

Only the mammal bones recovered from the Power Pole Site have been identified. The results of this analysis are listed in Figure 72. All specimens are current to the area today (Dittert, et al, 1961, pp. 30, 31), but the lack of specific names restricts a detailed reconstruction of the ecological surroundings.

A fired mud dauber nest was removed from the fill of Structure 9, Valentine Village. It probably was attached to the house at one time, and was fired and thus preserved during the final conflagration.

Conclusions

The geological environment, which was utilized for materials, is geologically old and does not reflect events taking place during the Los Pinos Phase. However, the vegetation and wildlife occurring within the vicinity of the habitation sites reflects the climate present during human occupation. Residue of all these environments does not suggest that conditions were different from those found today, and vegetation and wildlife remains indicate an Upper Sonoran Life Zone.

Fig. 72. Mammal bones identified from the Power Pole Site. Identification was made by Richard B. Forbes, Research Assistant, Biology Department, University of New Mexico.

PROVENIENCE	COMMON NAME	IDENTIFICATION AND NUMBER OF SPECIMENS
Structure 1		
Main Room		
Pit 1	Mouse	Peromyscus sp. (1)
	Wood Rat	Neotoma sp. (1)
	Pocket Gopher	*Thomomys sp. (4)
	Human	Homo sapiens (11)
Pit 5	Deer	Odocoileus sp. (2)
Pit 6	Deer	Odocoileus sp. (2)
Fill	Beaver	Castor cf. canadensis (1)
	Deer	Odocoileus sp. (2)
	Pocket Gopher	*Thomomys sp. (4)
Structure 1/ Structure 3		
Fill between pavings	Jack Rabbit	Lepus sp. (1)

Note:
cf. - compare with
* - naturally burrowing animals, and therefore may be intrusive.
() - number of identified specimens

BURIALS AND BURIAL PRACTICES

Three complete burials were found at the two sites. Several more finds of individual human bones suggest remnants of disturbed burials. This number is inadequate to represent the Los Pinos population, and it must be assumed that, commonly, inhumations were placed in an undiscovered location. Other than the fact that all burials were found within undercut pits, no pattern of burial practices can be established from such a small sample. A physical study of the skeletal material is planned for the future.

In addition to the human remains, two dog burials were encountered. One is described with refuse Test 1 at the Power Pole Site: a second occurs with Burial 1 at Valentine Village. Both dogs appear to have been cut in two and the dissected halves interred. This practice may indicate a "dog sacrifice" and is similar to the custom of including a dog skull with Rosa Phase burials in the Gobernador District (Hall, 1944, p. 73).

Burials At The Power Pole Site

Two infant burials, Burials 1 and 2, were found resting on the bottom of exterior Pit 1. They were placed among many

Fig. 73. Burials 1 and 2 in the bottom of Pit 1, Test 2, Power Pole Site. Burial 1 lies on the far side of the pit and overlies the legs of Burial 2 which can be seen just above the near edge of the pit orifice.

large river cobbles set randomly in the bottom of the pit. These skeletal remains were at right angles to one another: Burial 1 overlay the legs of Burial 2. Articulated Burial 1 was on its right side with legs drawn up toward its chest. Burial 2 is mostly disarticulated, although the arms had been replaced in their approximately correct position. Ribs of this burial were completely missing from the area of the body, and were found scattered vertically through the pit fill, indicating that this skeleton was disturbed during a re-opening of the pit for the interment of Burial 1 (Fig. 73).

Burials At Valentine Village

BURIAL 1

Burial 1, the only complete skeleton found on this site (Fig. 74), was in sub-floor Pit 4, Structure 3, in a north-south orientation, lying on its back, the head toward the south. Arms were extended along the side of the body. The lower legs were folded back, due, perhaps, to a lack of room in the pit. A rotted log lay partially over one leg, and extended in an easterly direction past the nose of a dog. Several rocks lay at the feet of the human.

Two articulated sections of a dog skeleton, assumed to be parts of a single animal, lay to the right of the human. Fore quarters of the skeleton, which include the head and front legs, were near the human feet. Hind quarters were found near the right elbow of the human. The rib cage and vertebral column are missing. The separated position of the two articulated halves suggests that the animal had been cut in two while the bones were held in place by tissue, and both parts then placed in the burial pit to accompany the deceased human.

Fig. 74. Burial 1 in the bottom of subfloor Pit 4, Structure 3, Valentine Village. Note log which overlies the knees of the human and the two segments of a dog burial which lie to the left of the human figure.

BURIAL 2

A set of human bones, which had been disturbed, were found in the fill against the west wall of sub-floor Pit 3, Structure 10. This burial consists of a cranium and some nearby miscellaneous bones. No artifacts were associated and, of course, no information was obtained concerning the body orientation. The burial apparently was made while the house was still in use; it was disturbed during a re-opening of the pit. At the time of excavation, the pit was partially sealed over by floor plaster.

BURIAL 3

A second disturbed burial, that of an infant, was removed from the fill of sub-floor Pit 10, Structure 11. Again, no artifacts were associated.

CHAPTER IV

CHRONOLOGY

Three dating techniques will be considered: stratigraphy, ceramic associations, and radiocarbon dating. Samples of thermoluminescent fired clay (Kennedy in Suhm, 1959, p. 7) and obsidian patination (Friedman and Smith, 1960, pp. 476-493) are being held until dating analyses can be made. Log specimens were sent to the Laboratory of Tree-Ring Research, University of Arizona, but their erratic growth pattern makes them unsuitable for dendro-dating.

Relative placement and time placement, using the first two approaches, will be attempted by the archaeologist. Time placement for structures at Valentine Village, was provided by radiocarbon laboratory specialists at Isotopes, Inc. Carbon 14 samples from the Power Pole Site, were submitted to the University of Michigan, Michigan Memorial Phoenix Project, but results have not yet been received.

Because no single approach to dating is foolproof, several techniques are utilized in an attempt to arrive at a reasonable average time range for the two excavated settlements. Results from these analyses suggest a time range from A.D. 200 to about 550. Stratigraphy provides only a relative placement of architecture and refuse, but does suggest that the ring-house may have been preceded by the non-ring type. Ceramic association and radiocarbon dating, both support this sequence. Ceramics in non-ring Structure 10, Valentine Village, indicate a date prior to A.D. 350, and a total range for this site of A.D. 200 to 400. Two radiocarbon dates from Valentine Village date Structure 10 at A.D. 321 $\pm$ 90, and the construction of ring Structure 4 as prior to A.D. 541 $\pm$ 80. In terms of the Pecos cultural sequence, Los Pinos occupation at both sites may have occurred between late Basket Maker II and early Basket Maker III times. Culturally, however, the Los Pinos Phase is Basket Maker II and lacks the characteristic ceramics and house type of Basket Maker III. If the A.D. 541 $\pm$ 80 radiocarbon date is valid, then the Los Pinos Phase lasted longer than the absence of Anasazi trade wares would suggest, in dicating a cultural lag behind the nearby centers of Basket Maker III development.

STRATIGRAPHY

Relative placement of events by stratigraphy is possible, based on five types of superposition: relationship of structures, cobble paving to refuse, pits to structures, pits to pits, and house and pit fills. In no case does this approach yield a composite sequence of events in which one type of data invariably follows another; but it does suggest that occupation had some time depth, allowing for several constructional features to pile up in one spot.

Superimposed Structures

Three examples of superimposed architectural construction were noted: two sets of stratified houses, Structures 3 over 10, Valentine Village, and Structure 1 over 3, Power Pole Site, and one case of rebuilding, Structure 9, Valentine Village. One of the most convincing cases of architectural stratigraphy is found between houses 3 and 10. The accident of location has been described under Structure 10, Chapter II, and is well illustrated in Figure 24, plan and profile C-C and Figure 75. The main room of non-ring Structure 10 was originally dug into the flank of a low ridge near its crest. Subsequently, this house burned, collapsed, was abandoned, and filled with refuse debris. At a later date, ring Structure 3 was con-

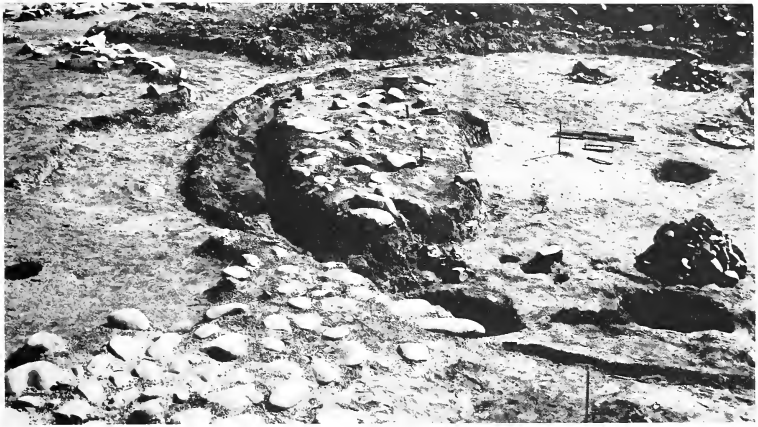


Fig. 75. Overlap of Structure 3 and 10, Valentine Village. Section of cobble paving from Structure 3, in center of photograph, is supported by a block of refuse fill resting on the main room floor of Structure 10.

structed on the ridge crest, in such a fashion that the southeast arch of its cobble ring paving passed over the northern arch of Structure 10. In plan view, the two structures appear like links on a chain, although they overlap rather than interlock.

A second example of direct superpostion is found at the Power Pole Site, where the antechamber of ring Structure 1 overlies a small cobble ring of Structure 3. In this case, the two rings are not offset as at Structures 3 and 10, Valentine Village, but neatly match in their overlap. This positioning may indicate a house renovation rather than a time gap of non-occupation with accidental re-use of the same house site.

One other type of structural superposition is noted in House 9, at Valentine Village. Here there is a definite stratigraphic relationship between building stages of the same structure. The earlier design of this house included main and antechamber rooms. Reddish oxidation on the antechamber floor indicates that this room burned and probably was not renovated. Subsequently, a crescentic paving of cobbles was placed around the downslope side of the main room in such a fashion that it partially overlies the previous antechamber floor. Results of this rebuilding provide a case of superimposed cobble paving overlying an antechamber, both being parts of the same architectural structure.

Stratified houses described above give indication of re-use of the same house site and the following successions in architecture: (1) ring over non-ring; (2) large cobble ring over small cobble ring; and (3) a partial ring structure over a non-ring structure. Due to the limited number of examples recorded, these cases of superposition do not prove an order of house type, but the potential for working out such a sequence is present. Proposed additional excavation should yield more examples of house stratification.

Cobble Pavings Over Refuse

In many instances described above (Chapter II), pavings of cobbles surrounding ring-type houses are underlain by thin deposits of black refuse. In part, this refuse is probably a continuation of the widespread surface refuse found on the site, or it may have been deposited when the shal-

low interior floor basin was excavated. The sequence of events which brought about this superimposed relationship are reconstructed as follows: (1) occupation on the site bench produced a widespread sheet deposit of black refuse; (2) from time to time, large basin-shaped floors were dug through this refuse and into the underlying natural reddish bench clay; (3) the dug fill was piled around the periphery of the cut floor area; and (4) a terrace pavement of river cobbles was laid on this heaped-up refuse. Opposing arguments are that no lenses of reddish clay were observed when a section was made through a given ring pavement. However, the charcoal stain found in the refuse might have blackened any reddish bench clay tossed onto the prehistoric back dirt during floor cutting. The significance in this relationship of material is that occupation of the site probably was underway before most, if not all, of the ring structures were built (Fig. 76). No relationship could be determined between the surface refuse, back dirt, and non-ring structures, except that the refuse also underlay small sections of paving associated with these latter structures.

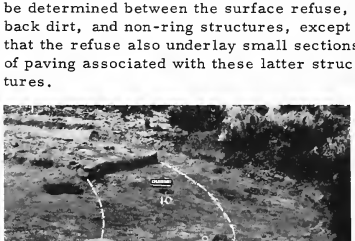


Fig. 76. Test through cobble paving, Structure 2, Valentine Village. Pits 9 and 10 underlie the paving. Note thickness of refuse supporting cobbles.

Relation of Pits to Structures

As described in Chapter II, many pits were cut into the bench surface; some are inside the houses, some outside, and a few directly under cobble pavings. Because the floors of the ring houses were not surfaced, and, except at Structure 1, Power Pole Site, there is no plan to the sub-floor pits within these buildings, it cannot be stated with certainty that a given set of interior house pits actually belongs with a particular structure. Only pits lying directly under a ring paving can categorically be placed in time prior to the ring structure (Fig. 76). Pits underlying ring houses at Valentine Village include the following listing: Structure 2, Pits 9 and 10; Structure 3, Pits 12 and 14; and Structure 6, Pits 2 - 5. Pits 11 and 12 at Structure 9 appear to pre-date the house construction, since they are intersected by the exterior trench dug to recess the house into the backslope of the site bench. No superimposed pits were encountered during excavations at the Power Pole Site.

Relation of Pits

An indication of the length of house occupation is supplied by intersecting sub-floor pits. Where the internal fill of these features is contrasting, as among charcoal, ashy fill, and reddish clay fill, the order of construction can be determined. However, where no contrast between fill of intersecting pits appears, only the presence of both is recorded. Types of fill described above, makes possible the separation of sequentially constructed pits. Another phenomenon which the two types of fill make evident is the nature of deposition in sub-floor pits, as opposed to the overlying general house fill. Some houses appear to have part of their sub-floor pits filled with reddish-brown fill, while other pits, and the overlying house fill, may contain contrasting black refuse. Various explanations for these occurrences are: (1) some pits may have been intentionally filled by the house occupants during the process of house renovation; (2) all or part of the fill may have been washed into the pits after abandonment; (3) fill of the overlying house floor basin may have washed into the house; or (4) refuse may have been dumped there by post-house occupants of the site. It is significant that most of the houses, ring and non-ring types, show interior fill of black refuse. This stratigraphic relationship of refuse to architecture indicates that occupation con-

tinued after most of the excavated houses reported here had been abandoned. At Valentine Village, Structures 3 and 5 may have been the latest houses in use.

CERAMIC ASSOCIATION

Observation of the surface remains of Los Pinos Phase Sites, made during the original Reservoir-wide survey, suggested that few, if any, ceramics were associated with architectural structures and refuse deposits (Dittert, et al, 1961, p.213). This postulation gained support at the Power Pole Site, where only one ceramic sherd was encountered below the present ground surface (Pit 6, Structure 1). However, the following year, during work at Valentine Village, sherds were removed from fill, found on floors and excavated from trash tests. At least four categories of ceramics are represented: unnamed gray and brown wares, and previously described Pueblo and Navajo types (Dittert, et al, 1961, pp. 149-154). The surface distribution and provenience of this material provides some clues to its proper association. Dating of tne Pueblo and Navajo ceramics has been presented in Dittert, et al, 1961, Figure 37, and generally is confined to the periods A.D. 700-1050 and A.D. 1550-1775. No previous dating has been attempted for the gray and brown wares, nor for that matter, have they been established as types (Description of Portable Clay Artifacts). In a discussion on dating in Dittert, et al (1961, p.218), it was concluded that a lack of ceramics in the Los Pinos Phase could indicate a period of occupation prior to A.D. 500. This statement probably will be revised and refined when the gray and brown ware mentioned above are precisely dated, and their proper association in the Los Pinos Phase defined. The discussion to follow will examine the problem of correct association and its meaning. Specific dating of these minor ceramic types is not attempted; only a very general ceramic chronological statement can be presented.

Surface Distribution

Sherds were found on the surface of both sites (Dittert, et al, 1961, Table 9). The Power Pole Site produced four specimens of Rosa Gray on survey, and two sherds from the surface, during the period of subsequent excavation. One hundred and eight sherds, identified as Navajo Period types, were collected from the surface of Valentine Village, and increased by seventy-one collected from the surface during excavation. Whereas no particular distribution was noted for the Power Pole Site, a definite concentration of Navajo ceramics is present at Valentine Village (Fig. 5). This component has been discussed under surface refuse for that site. It was suggested that earlier Los Pinos structures within this area and its immediate periphery would have been most vulnerable to subsequent contamination. In general, distribution of Pueblo and Navajo sherds on Los Pinos ring sites indicates nearby or subsequent reoccupation.

Excavation Distribution

Unfired gray ware sherds were encountered in only one house, Structure 10, at Valentine Village. Out of a total of five sherds, four were removed from the antechamber, and one from the main room fill. This latter sherd, a lug, was located in the east half of the room, six inches below the ground surface.

Twenty unnamed brown ware sherds were collected from Valentine Village, as follows: Structure 11, 17 sherds; exterior Pit 15 near Structure 11, 1 sherd; exterior Pit 6 at Structure 2, 1 sherd; and exterior Pit 2, underlying the paving at Structure 6, 1 sherd.

At Structure 11, sherds were obtained from the following locations: main room house fill, 1 sherd; main room floor contact, 2 sherds; sub-floor Pit 7, 1 sherd; Pit 12, 1 sherd; and the back dirt from that structure, 12 sherds. There is no question about the source of this back dirt, since it was piled separately from that removed from other nearby structures. Greminger, who supervised the excavation, believes that these sherds were removed specifically from Pits 1, 2, and 7. It is unfortunate that the workman assigned to clean these subfloor pits missed the sherds. When one of the other laborers discovered a single sherd

on the back dirt pile, a systematic shoveling and sifting disclosed the rest of the collection. Association with the specific pits is questionable, except in the occurrence from the main room in Structure 11. Evidence for association within these pits and the house itself is very good, since the pits are laid out in a systematic pattern, and Pit 1 has a plastered orifice continuous with the floor plaster. The two floor contact pieces are from the southern edge of the main room, near Pit 12, directly on plastered floor (Fig. 45).

Only two Pueblo Period sherds were excavated. They represent two ceramic types, Rosa Brown and Rosa Gray. The Rosa Brown sherd has eroded edges and may have been secondarily associated with the fill of ring Structure 2, Valentine Village, during the clearing of that structure. One sherd of Rosa Gray was removed from the fill of sub-floor Pit 6 in ring Structure 1 at the Power Pole Site. It is not known whether this represents a primary association.

Navajo sherds occur in larger numbers, and are more widespread than other types. One hundred and thirty-seven were removed from Structures 2 and 10, Exterior Pit 8, at Structure 2, and from Trash Tests 2 and 3. Most of these, 109, were removed directly from Navajo Refuse.

Conclusions on Association

It appears, then, that gray and brown wares are specifically associated with two out of three of the non-ring houses. All of the gray ware sherds came from Structure 10, the majority of the brown ware sherds from Structure 11. In addition, several exterior pits produced brown ware sherds. Navajo Period sherds were removed from Structures 2 and 10, as well as from trash tests. Their occurrence in Structure 10 is not surprising since the Navajo refuse component extends over part of this structure. The large number of sherds (12) in the fill of Structure 2 may be accounted for by drift. Refuse tests were put down in the Navajo component to obtain a sample of sherds, and therefore, their presence here also is not unexpected. Absence of sherds from non-ring Structure 9 and from ring Structures 1, 3, 4, 5, 6, 7, and 8 is a contrasting situation, and significant.

Several differing hypotheses could account for these ceramic associations: (1) presence and absence of ceramics indicate three periods of occupation, i.e., a gray and brown ware occupation, a period of no use of ceramics, and a Navajo occupation; (2) occurrence of gray and brown ceramics indicates an inconsistency, with some people having the benefit of pottery, and some not, within the same contemporary village; (3) the skewed recovery of the small ceramic sample is an accident of excavation; or (4) the architectural structures described were really occupied by the Navajo, the Navajo sherd collection being larger than the other two categories combined. At present, possibilities 1 and 2 seem most likely. Possibility 3 seems less likely, because of our general knowledge of the Los Pinos Phase; the five completely excavated ring structures would also have produced ceramics if they were at all in common association with this house type. Based on our general knowledge of the cultural history in the Reservoir District, plus the fact that no Navajo sherds were recovered from the Power Pole Site, the fourth suggestion is considered unlikely.

Chronological Significance

A review of earlier writing indicates that unfired sherds were recovered from Basket Maker sites, some of which also produced tree-ring dates. Geographic location and dendro-dates from these sites are given by Smiley (1951) and Morris and Burgh (1954, Fig. 46).

Two important time distributions are apparent. During 200's and early 300's, at Cave du Pont, Southern Utah, and at the Falls Creek sites in the Durango District, unfired clay vessels are scarce, and fired ceramics are absent. During the 400's at Obelisk Cave, and the 600's in surrounding caves of the Red Rock Valley (Prayer Rock

District) of northwestern New Mexico, and elsewhere in the Four Corners region, fired pottery is in apparent association with unfired sherds. From these dates, it is estimated that Structure 10 at Valentine Village, which contains unfired gray ware and lacks associated fired ware, may date between A.D. 200 and 350.

Although gray ware is the characteristic ceramic form in the Anasazi Culture area, occasional mention is made of early local brown wares. One such type, Rosa Brown, is found in the Navajo Reservoir District, and is described by Hall (1944, pp. 33-34) as an early sub-type of Rosa Gray, a local plain ware of the Pueblo I Period. Following Hall (1944), a suggested date in the A.D. 700's and 800's has been assigned Rosa Brown by Dittert, et al (1961, Fig. 37).

A second type, designated as Obelisk Gray, is assigned to the Tusayan Gray Ware, but it has been suggested as a possible connecting link between the Mogollon Brown Ware tradition, present to the south, and the beginnings of pottery making in the north (Colton, 1955, Ware 8A and Type 1). Obelisk Gray is assigned a much longer time span, extending from A.D. 450 to 800, or throughout Basket Maker III and part of Pueblo I. Although neither type corresponds exactly with the brown ware sherds recovered from Structure 11, at the Valentine Village, the general correspondence would suggest a composite age range of A.D. 450 to 800 for northern brown wares. Therefore, brown ware ceramics from Structure 11 at Valentine Village may date in this vicinity. However, it is estimated that the structure was in use during the early part of this time distribution due to the architectural similarities with nearby Structure 10.

Another line of ceramic dating arises from the absence of Basket Maker III-Pueblo I trade types, such as Lino and Chaping Gray, as well as Twin Trees Plain. On the basis of geographic and time considerations, any or all of these types could be expected in some quantity if occupation at either site extended much beyond A.D. 450.

In conclusion, ceramics associated with non-ring architecture at Valentine Village suggest a maximum possible occupation span, ranging from A.D. 200 to 800; more probably between A.D. 200 and 400.

RADIOCARBON DATING

Writing was begun on Stratigraphy and Ceramic Association before results of the radiocarbon analysis were received. Therefore, it was of particular interest to compare the findings of these two chronological approaches when the Carbon-14 dates were assembled.

Carbon-14 Dates From Valentine Village

Many samples of charcoal and rotted wood which could be used for radiocarbon dating were collected from Valentine Village. The samples were from construction logs and refuse fill. Funds were available to run only two dates, so specimens were selected to give the maximum amount of information regarding the Los Pinos Phase. After the architectural analysis was completed, it seemed most advantageous to obtain dates on the two types of houses, the most reliable and characteristic criteria of this phase, as a further means of checking the stratigraphic and developmental relationships between house styles. For these reasons, one wood sample was picked from non-ring Structure 10, and one from ring Structure 4. Selection of a specimen from a non-ring structure was simple, there was ample wood in all of these structures. A section of a first course construction log was removed from the north side of the main room, Structure 10.

Very little wood was available in the ring structures, but a good sample consisting of large charcoal fragments had been collected by trenching the fill of ring Structure 4. It was these two samples which were sent to Isotopes, Inc., in March of 1961. Results, received the following month, are as follows:

Years Before Present	Provenience	LA Sample Number	Isotopes Inc. Number
1640 ± 90	Structure 10 main room construction log	4289-7-146	I-251
1420 ± 80	Structure 4 fill charcoal	4289-4-2	I-252

In terms of the Christian calendar, non-ring Structure 10 was built about A.D. 321 ± 90; ring Structure 4 was built and occupied prior to its filling with refuse, which took place around A.D. 541 ± 80. It will be interesting to see how these dates stand up when more are available from future excavations. Taken at face value, the following statements are noteworthy: (1) the dates substantiate the stratigraphic sequence of ring over non-ring houses found between Structures 3 and 10; (2) the early date of A.D. 321 ± 90 fits very well within estimates on ceramic associations for Structure 10; (3) the A.D. 541 ± 80 is perhaps 100 years later than the absence of Pueblo ceramics indicates. If the latter date is valid, then occupation of ring structures of the Los Pinos Phase may have lasted until early Basket Maker III times, but trade routes to bring in outside ceramics were neither active nor well established. This situation must have changed in late Basket Maker III times, since the greatest occurrence of Lino Gray found throughout the Reservoir appears in the Pine River Section (Dittert, et al, 1961, p. 149). In the future, as more excavations are conducted, it may not be surprising to find these trade types appearing in association with late Los Pinos Phase sites.

CHAPTER V

CONJECTURES AND PROBLEMS

Conclusions are presented in abstract form in Chapter I. Following are the impressions based on these conclusions, and a formulation of problems for future excavation and laboratory research.

Although the architectural and portable tool samples from both sites were lumped together for descriptive purposes, future work in other Los Pinos Phase sites may well allow a breakdown into sub-categories. This procedure already has been attempted in the case of the house types. Although sufficient stratigraphic information is lacking, the form of these structural types implies a developmental relation possibly somewhat separated in time. It is suggested here that a possible sequence might extend from the dumbbell-shaped non-ring house with no terrace paving through one with a partial paving near the antechamber hall door, then to a house with a partially surrounding terrace, and finally to the full ring pavings. The two figure-eight ring structures help fill in this postulated seriation, and bridge the gap between the dumbbell-shaped non-ring house and the circular ring structures.

If there is validty to this hypotheses of development, the non-ring house type preceded the ring style. This could come about if the technique of building ring terraces was introduced into the area and simply employed around an already developed house style.

The problem of the derivation of a cobble ring architectural style will only be solved by expanded and extensive surveys into surrounding districts. Cobble rings of this apparent form are reported from surface observations in the Northern High Plains (Dittert, et al, 1961, p. 220) and from southwestern Utah (Rudy, 1961, personal communication; and Rudy and Stirland, 1949).

Continuity with succeeding cultures is indicated by the general bilateral symmetry of the house floor plan, particularly for the non-ring and figure-eight ring structures. This arrangement was achieved by aligning the interior architectural details along an axis through both the main and antechamber rooms, bisecting the centrally placed fire basins, intramural hall, and the exterior hallway, if any. This pattern extended into the Basket Maker and Pueblo Periods, where the antechamber probably developed into the pit house ventilator system. There is also a gradual deepening of the house; from near surface in the Los Pinos Phase, through partly recessed during the Basket Maker III Period, to the very deep pit houses of the Pueblo I Period. These architectural trends help demonstrate that the Los Pinos Phase did not dead-end, but was antecedent to later cultures in the Southwest.

A breakdown of the Los Pinos tool complex into smaller developmental units, may be found through a study of the tool sample, seeking changes in tool frequency for each individual house, and house types. This approach will become more feasible as additional sites are excavated, producing a larger sample, particularly of floor contact specimens. Similarities of tool forms, with preceding and succeeding cultures, occur. The one-hand manos show similarities with manos found in the Archaic Lithic Period reported from the Reservoir District. Therefore, they may precede the two-hand manos, which are more nearly similar to the later Pueblo Period styles. The basin metates also may be earlier in

time than the closed end trough metates, which appear developmentally to precede the Pueblo style of metate.

An association of two types of pottery is suggested for the Los Pinos Phase; an unfired gray ware and a fired brown ware. However, the distribution of these types is very puzzling. It is tentatively suggested here that ceramics were in use only by occupants of the non-ring houses, and that their use did not continue. We propose that future research look for a phase difference between architectural styles and associated ceramics.

The occurrence of these ceramics raises the question of their local or non-local derivation. The small sample obtained from Valentine Village is divided into quite distinct groupings which differ in clay, tempering, thickness, surface appearance, color, and firing. The gray ware is identical in material, firing, and appearance, to quantities of clay architectural objects, and, is most likely to be of local manufacture. Therefore, this question boils down to one of the source of the sample of brown wares from Valentine Village. Two possibilities present themselves: (1) these sherds were made locally, because they are similar to later brown wares produced in the Rosa Phase of the Reservoir, (2) an opposing argument may be made that they differ from the indigenous gray ware and are too advanced technologically to have been produced by the same people concurrently. Further, the center of brown wares lies to the south and it is likely that early examples of these would first appear in the San Juan Basin as trade wares to be copied subsequently by local manufacture. The author favors the second possibility.

Future research by a ceramic technologist could investigate, petrographically, the clay and temper materials to establish their source. Also, archaeological research may be able to locate more examples of similar brown wares. Steps are being taken in this direction within the Reservoir and future salvage projects elsewhere in the State may provide some answers outside the study area.

The unfired ceramics are significant as an indication that local people were beginning to experiment with plastic clay, a new materials medium. Clay was experimentally applied to building construction and used in the manufacture of portable clay artifacts.

Upon completion of the Reservoir District survey, two types of problems were formulated concerning the Los Pinos Phase. They included problems to be solved by excavation, as well as geographic problems to be solved by extensive surveys in surrounding regions. The latter must await post-salvage research. The present excavation program was designed to deal with the first type of problem. During the survey, work was conducted at the Power Pole Site to gain information about the ring architecture and the refuse deposits. These findings were included in the survey report, providing a preliminary description of the Los Pinos Phase. With this background study completed, a second site was selected to allow further exploration into problems such as the nature of a village-size site, characteristics of the non-ring house type, and the effect of geographic isolation.

Some answers to the first two questions were provided in the descriptive portion of this report. The problem of the effect of geographic isolation was raised, upon the observation that a community cluster appears around the head of the Pine River Section, and that this cluster unit is balanced by the dispersal of other sites extending to the south, down the Pine River, toward its mouth (Dittert, et al, 1961, p. 216). It is felt that a comparison of the content and arrangement of the isolated sites with those found within the community cluster might yield information on this problem. The Power Pole Site is found within the site cluster, and therefore should reflect this status. Similarly, the selection of the Valentine Village Site should yield data on an isolated village. The type of data that was being sought is information on outside trade contacts, and specialization indicating cooperation within the community grouping. Some of the answers will have to await additional excavation in each location to allow

a more reliable and detailed material cultural pattern to be established. At least as far as outside contacts are revealed, the geographically isolated Valentine Village produced the only evidence of ceramic trade goods, and therefore does not fit the postulated hypothesis. It is hoped that more study in all types and locations of Los Pinos sites, will supply evidence to solve these problems.

****

Addendum

After the manuscript had been sent to the printers, three radiocarbon dates were received from the University of Michigan. These are given below along with their provenience as described in the text. Taken as a group, the three Michigan dates are earlier than those run by Isotopes, Inc. from Valentine Village and correspond very closely with the series of tree ring dates obtained from the Durango Basket Maker II sites (Morris and Burgh, 1954, pp. 48-49). The Michigan series dates Structures 1 and 3 at LA 4257 and these ring structures are earlier than was postulated in the sequence of house developments. Probably the radiocarbon dating method is not sufficiently critical to arrange the individual houses or house styles by time.

Age in Years Before Present	Age in the Christian Calendar	Provenience	LA Sample No.	Univ. of Michigan Radiocarbon Laboratory
1830 ± 150	A.D. 131 ± 150	LA 4257 Structure 1 Log in Pit 5	4257-1-29 re-numbered 4257-1-43	M-1115B
1740 ± 150	A.D. 221 ± 150	LA 4257 Structure 3 Const. log	4257-1-40 re-numbered 4257-1-49	M-1115D
1690 ± 150	A.D. 271 ± 150	LA 4257 Structure 1 Log in Pit 5	4257-1-30 re-numbered 4257-1-44	M-1115C

BIBLIOGRAPHY

Colton, H. S.
1955 Pottery Types of the Southwest, Wares 8A, 8B, 9A, 9B. Ceramic Series No.3, Museum of Northern Arizona, Flagstaff.

Colton, H. S. and L. L. Hargrave
1937 Handbook of Northern Arizona Pottery Wares. Museum of Northern Arizona, Bulletin No. 11, Flagstaff.

Dittert, A. E., Jr.
1958 Preliminary Archaeological Investigations in The Navajo Project Area of Northwestern New Mexico. Navajo Project Studies: I, Museum of New Mexico Papers in Anthropology, No. 1, Santa Fe.

Dittert, A. E., Jr., J. J. Hester, and F. W. Eddy
1961 An Archaeological Survey of the Navajo Reservoir District, Northwestern New Mexico, Navajo Project Studies II. Monograph of the School of American Research and the Museum of New Mexico.

Eddy, F. W.
1958 A Sequence of Cultural and Alluvial Deposits in the Cienega Creek Basin. Southeastern Arizona. Master of Arts Thesis, University of Arizona, Tuscon. (Unpublished)

Evans, C. and B. J. Meggers
1960 A New Dating Method Using Obsidian: Part II, An Archaeological Evaluation of the Method, in American Antiquity, Vol. 25, No. 4, pp. 523-537, Salt Lake City.

Friedman, I. and R. L. Smith
1960 A New Dating Method Using Obsidian: Part I, The Development of the Method, in American Antiquity, Vol. 25, No. 4, pp. 476-493, Salt Lake City.

Hall, E. T., Jr.
1944 Early Stockaded Settlements in the Governador, New Mexico. Columbia Studies in Archaeology and Ethnology, Vol. 2, Pt. 1, New York.

Kennedy, G. C.
1959 The Application of Thermoluminescence to Problems in Archaeology, in (Dee Ann Suhm, ed.) Abstracts of Papers, Twenty-fourth Annual Meeting of the Society for American Archaeology, p. 7, Salt Lake City.

Kent, K. P.
1957 The Cultivation and Weaving of Cotton in the Prehistoric Southwestern United States. Transactions of the American Philosophical Society, New Series, Vol. 47, Pt. 3, Philadelphia.

Kidder, A. V.
1932 The Artifacts of Pecos. Robert S. Peabody Foundation for Archaeology, Phillips Academy, Andover.

Morris, E. A.
1960 Basket Maker Caves in the Prayer Rock District, Northeastern Arizona, in Richard Woodbury, ed.) Abstracts of New World Archaeology, Vol. 1, Society for American Archaeology, Salt Lake City.

Morris, E. H., and R. F. Burgh
1941 Anasazi Basketry, Basket Maker II through Pueblo III. Publication 533, Carnegie Institution of Washington, Washington, D.C.

1954 Basket Maker II Sites near Durango, Colorado, Publication 604, Carnegie Institution of Washington, Washington, D.C.

Munsell Color Co.
1954 Munsell Soil Color Charts. Baltimore.

O'Bryan, D.
1950 Excavations in Mesa Verde National Park, 1947-1948, Medallion Papers, No. 39, Gila Pueblo, Globe.

Roberts, F. H. H., Jr.
1929 Skabik'eshchee Village, A Late Basket Maker Site in the Chaco Canyon, New Mexico. Smithsonian Institution, Bureau of American Ethnology, Bulletin 92, Washington, D.C.

Rudy, J. R. and R. D. Stirland
1949 An Archaeological Reconnaissance in Washington County, Utah. University of Utah, Anthropological Papers No. 9, Salt Lake City.

Sayles, E. B. and E. Antevs
1941 The Cochise Culture. Medalion Papers No. 29, Gila Pueblo, Globe.

Smiley, T. L.
1951 A Summary of Tree-Ring Dates From Some Southwestern Archaeological Sites. University of Arizona Bulletin, Laboratory Bulletin of Tree-Ring Research No. 5, Tuscon.

cover design by Joseph Haydock